

Consumers' Research Bulletin



September 1953

Waste Disposal Units	5
Anti-Perspirants and Deodorants	9
TV Antenna Rotators	19
Refrigerators, Refrigerator-Freezer	21
Ball-Point Pens	24

FOR THE HOME

Vegetable Peeler	12
Scouring Powders	13
Climate a Factor in Selection of Fuels and Heating Equipment	16

MISCELLANEOUS

New Claims for Gasoline	15
Danger in Use of Chlordane	23
Checking on a Company before You Buy	28

FEATURES

Off the Editor's Chest	2
The Consumers' Observation Post	3
Brief Cumulative Index	18
Ratings of Motion Pictures	31
Phonograph Records—Walter F. Grueninger	35

Consumers' Research Bulletin

OFF THE EDITOR'S CHEST

THIS is the time of year when the fall cleaning season is at hand, and advertisements and catalogs of department stores set forth the advantages of a wide variety of household chemical products. These chemical specialties for many different uses make their appearance on the market in such increasing numbers that it is difficult to keep up with them. New brands are advertised almost daily and consumers are constantly being intrigued by the alluring claims for a quicker and easier way to do some household chore such as removing tarnish from silver, cleaning porcelain enamelware sinks, lavatories, ovens, and refrigerators.

The task of evaluating these new products is not an easy one. Commonly a chemical analysis is required to determine whether or not the formula is free from poisonous or potentially harmful chemicals. In some cases, the product must also be tried out in use according to directions of the manufacturer to see whether it actually is effective in terms of its claims as advertised.

Some excellent general advice with respect to cleaning materials has been given by the American Hotel Association which lists three characteristics that such a preparation should possess: it should clean effectively; leave little or no film—which would cause more rapid resoiling; and be safe to use both from the standpoint of its effect on the surfaces to be cleaned and its effect on the health of the user.

Whether a new product is effective in use can sometimes be ascertained easily by the consumer who is out-of-pocket only a small sum for the preparation and the time spent in applying it. On the other hand, there may be some damage to household furnishings or utensils to which the product is applied. A cleanser that is too abrasive—as many scouring powders are—when used on porcelain enamel will abrade and damage the surface to such an extent that it will in due time become a catchall for dirt and grease. Silver polishes that are too harsh will leave unsightly scratches or dullness of finish on fine silverware. Cleaners that are too highly alkaline, as many are, will soften and ultimately remove paint if they are used to wash painted surfaces. Cleaners that are alkaline will also corrode certain metals such as aluminum and cause linoleum to become dry and brittle, and to lose its smooth, dirt-repellent surface. Certain furniture polishes containing volatile solvents will in time damage the varnish

(Continued on page 27)



SEPTEMBER 1953

VOL. 32 • NO. 3

Consumers' Research functions to provide unbiased information on goods bought by ultimate consumers. For their benefit (not for business or industry) and solely with the funds they provide, CR carries on tests and research on a wide variety of goods, materials, and appliances, and publishes the findings in CR Bulletin. Consumers' Research is a non-profit institution, and is organized and operates as a scientific, technical, and educational organization.

Scientific and Technical Staff and Editors: F. J. Schlink, R. Joyce, D. C. Aten, M. C. Phillips, Erma A. Hinek, F. X. Hinek, and A. R. Greenleaf. Editorial Assistants: Mary F. Roberts and B. Beam. Business Manager: C. D. Cornish.

Symbols used to indicate sources of data and bases of ratings: A—recommended on basis of quality; AA—regarded as worthy of highest recommendation; B—intermediate with respect to quality; C—not recommended on basis of quality; CR—information from Consumers' Research's own tests or investigations; 1, 2, 3—relative prices, 1 being low, 3 high. Note that price and quality are completely differentiated in CR's listings; a quality judgment is independent of price; \$2, \$3—year in which test was made or information obtained or organized by the staff of Consumers' Research.

It will be advantageous if you will, whenever possible, send prompt notice of change of address at least 5 weeks before it is to take effect, accompanying your notice with statement of your old address with name in full. At least a month's notice must be given in any case. This rule, however, regarding long advance notice does not apply to military personnel. CR will, of course, gladly change addresses for men and women in the services as often as required by changes in station and other circumstances.

★★★For a brief cumulative index of the 1953 BULLETIN preceding this issue, see page 18.

CONSUMERS' RESEARCH BULLETIN, issued monthly by Consumers' Research, Inc. Editorial and Publication Offices at Washington, N. J.

Subscription price (12 issues), \$3 per year, U.S.A.; Canada and foreign, \$3.50. Single copy 30c. For libraries, schools, and colleges, a special subscription of nine monthly BULLETINS (October-June, inclusive) is available at \$2; Canada and foreign, \$2.50. Responsibility for all specific statements of fact or opinion at any time made by Consumers' Research lies wholly with the technical director and staff of the organization. Entered as second-class matter November 9, 1934, at the Post Office at Washington, N.J., under the Act of March 3, 1879; additional entry at Easton, Pa. Copyright, 1953, by Consumers' Research, Inc., Washington, N.J.

●●●Printed in U.S.A. ●●●CONSUMERS' RESEARCH BULLETIN is on file in many school, college, and public libraries and is indexed in Industrial Arts Index and in the Readers' Guide to Periodical Literature. ●●●Microfilm copies of complete volumes of CONSUMERS' RESEARCH BULLETIN can be purchased at \$1.50 per volume (beginning with the 1949 volume). Orders for the microfilm edition, which is available only to regular subscribers to the monthly issues of CONSUMERS' RESEARCH BULLETIN, should be sent to University Microfilms, 313 North First St., Ann Arbor, Mich.

Note: The material in this BULLETIN is protected by copyright. Reprinting is often allowed, when special permission has been asked and granted in writing. Use of CR material for any advertising purpose is not permitted.

The Consumers' Observation Post

SECONDHAND AUTOMOBILES are so plentiful these days that a prospective buyer has an excellent opportunity to shop for a bargain. There are many pitfalls to be avoided in purchasing a used car, however, not the least of which is the possibility of being stuck with a traded-in police car. Warnings have been issued in New York City that used police cars from Philadelphia are flooding the market disguised as ordinary civilian vehicles. Since such cars are pretty well "beat up," as one trade association put it, their expected trouble-free service life is a question mark and they cannot be considered a bargain even at \$100 to \$300 less than comparable models turned in by ordinary consumers. Refinished used taxicabs present a similar problem to buyers of used cars.

* * *

BREAD will keep its original freshness for several weeks if stored in the home freezer in its original moistureproof wrapper, advises the American Institute of Baking. The next best method is to store the bread in its wrapper in a breadbox at room temperature. The refrigerator is little help in keeping bread fresh and should be used for storing bread only in cases where so little bread is used or the weather is so humid that mold development is the principal problem.

* * *

CONSUMER PRODUCTS MANUFACTURED BEHIND THE IRON CURTAIN in such countries as Czechoslovakia, Poland, Hungary, Bulgaria, Romania, and the Soviet Zone of Germany are found in various shops in this country. In an interesting article entitled Here's My View on Cash for the Kremlin, Joe Keeley, editor of the American Legion Magazine, points out that the consumer who does not wish to buy Red-made goods should look for labels indicating the country of origin in making his purchases. There are a number of cameras made in the East Zone of Germany which are now required to be labeled "Made in the Soviet Zone of Germany," as well as Zeiss binoculars. Fine glass objects are likely to come in from Czechoslovakia along with other products, now that William Oatis has been freed. Mr. Keeley suggests that if there is no label showing the country of origin the prospective purchaser should ask for assurance by a responsible executive that the product is not from a country behind the Iron Curtain, with a money-back guarantee in writing.

* * *

STRAIN ON THE EYES from reading can be avoided by good lighting. Particularly for those who have reached the age of 40, sufficient light for reading is essential. In addition to general room lighting, older people might well use a table lamp or bridge lamp with a 150 or 200 watt bulb, according to recommendations by the National Society for the Prevention of Blindness. Women who sew at night should also make certain that their work is well lighted by a bulb of sufficient wattage.

* * *

BATTERY ADDITIVE PRODUCTS, compounds, or "dopes" that are claimed to be beneficial to storage batteries will be approved by car battery manufacturers if it can be shown after laboratory and field tests in accordance with accepted engineering practices that such products are actually beneficial to the storage battery. That was the substance of a resolution passed by battery manufacturers from three countries meeting in Quebec last June. The resolution included the observation that extensive studies by members of the battery manufacturers' association as well as those carried out by the National Bureau of Standards had turned up no additive product, compound, or "dope" which substantiates the claims its sponsors make for it.

THE EFFECT OF FLUORIDE IN THE WATER SUPPLY continues to be the subject of widespread scientific study. One of the unhappy effects of fluorine in drinking water is mottled teeth, a phenomenon that is characteristic of certain sections of the Southwestern states. An investigation of fluorosis in children in certain Arizona communities was reported in the May issue of Public Health Reports by Dr. Donald J. Galagan and Glenn G. Lamson, Jr. Of particular interest to communities considering mandatory fluoridation was the conclusion that in the water supplies of the Arizona communities studied concentrations of fluoride above 0.8 ppm. resulted in objectionable dental fluorosis; concentrations of 0.6 to 0.8 parts per million resulted in an occasional diagnosis of fluorosis. Comparisons of these data with certain Mid-Western communities indicated that fluorosis occurred at about twice the intensity in that section of Arizona as it did in the Mid-Western area with comparable fluoride concentrations in the water supply. The researchers suggest that possibly Arizona children drink more water than children living in more temperate climates and that as a result there is increased intake of fluoride in relation to the concentration found in the water supply. Those who have unfavorably regarded mandatory fluoridation had previously raised the point that the amount of water would vary from child to child, and certainly the data of the Arizona study would suggest that an abnormally large amount of fluoridated water drunk by a particular child or by children in a particular area might cause the unsightly fluorosis of the teeth.

* * *

SELF-ANSWERING TELEPHONES are now offered by the Bell companies and General Telephone. When the subscriber's telephone rings, a prepared message provides an acknowledgment of the call, and the caller is invited to leave a message. This is recorded on a disk or cylinder which can be played back. The cost is placed at around \$15 for installation plus a monthly charge of \$12.50. Small businessmen and busy professional people may find the service a great convenience.

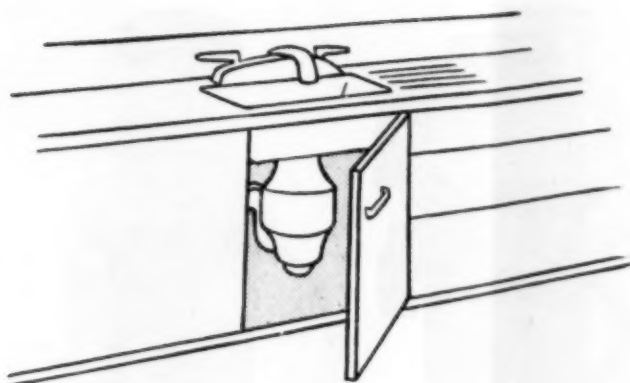
* * *

BUTTER, which is now piling up in government warehouses through the price support activities of the federal government, would soon disappear into consumption by normal consumer purchases if the price were allowed to drop. At least that is the conclusion drawn from an experiment by the D'Agostino Brothers Super Market in Manhattan which staged a Friday Butter Bargain Day at the retail price of 55 cents a pound. On a normal Friday the market sold nearly 500 pounds of butter, while on the Butter Bargain Day it sold nearly 5000 pounds. The company marketing the butter reported that it cost about \$2500 to make the experiment, but it did prove that if the price of butter were allowed to fall consumers would buy more of it.

* * *

MANY OF THE NEW SYNTHETIC DETERGENTS used for washing dishes and clothes contain a fluorescent dye, referred to as an optical bleach, included for the purpose of counteracting the yellow tint that often develops in fabrics. The extensive use of synthetic detergents during the last few years has brought to the attention of medical men and the public some cases of irritation of the skin due to such products, but in view of the very large quantities of the various products sold, the number of cases cannot be considered alarming. One rather unique difficulty with a particular detergent was reported by one of CR's subscribers, an engineer by training, who was in the habit of doing the family wash once a week in a washing machine that required the transferring of wet clothes to another receptacle. Shortly after he began using the new detergent he noticed that his face, neck, arms, and hands became as red as if he had been exposed to the summer sun. Subsequent investigation indicated the probability that a fluorescent dye-substance in the detergent had made his skin specially sensitive to sunlight at such times.

(The continuation of this section is on page 33)



Don't Use Your Disposal Unit For:

Metal, glass, crockery, string, paper, rubber, cloth, cloth tea bags, clam or oyster shells, large bones, feathers, tinfoil.

You May Use Your Unit For:

Food scraps, peelings, carrot, beet and turnip tops, pits and cores, orange and grapefruit peels and rinds, corn cobs, eggshells, small bones, coffee grounds, tea leaves.

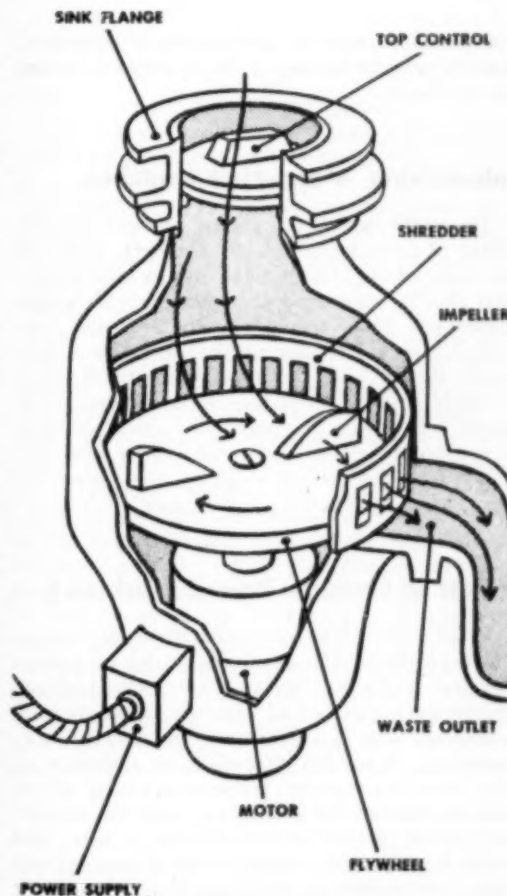
WASTE DISPOSAL UNITS

THE garbage can with its attraction for dogs, rats, mice, flies, ants, and other small animals and insects has long been a necessary part of the American kitchen or dooryard, and while it may not be quite on its way out, it is losing ground to mechanical waste disposal units. In many homes, the garbage can is now used chiefly as a receptacle for tin cans, broken glass and china, paper, and other items which cannot be handled by a disposal unit.

A waste or garbage disposal unit is essentially a motor-driven grinding device attached to the drain of the kitchen sink with its outlet connected to the sewerage system. Food wastes dropped into the hopper are broken up or ground into small particles and flushed away with cold water.

Safety

One possible hazard in the use of a waste disposal unit is that which would occur if the unit should become jammed to such an extent that the contents would have to be removed by hand, and the unit should be started accidentally while this is being done. The water-flow switch reduces this hazard, as the motor cannot be started unless the cold water is running; however, a positive on-off switch in the line near the unit (or built in) is considered a very desirable safety feature. The *American* and *Eureka* had no independent on-off switches, and so could in some circumstances be started accidentally, through carelessness or accident. The *Youngstown* and the *Sears' Homart* had switches which would prevent accidental starting, but with the *Homart*, because of the close proximity of the rotor, which has sharp projections, to the baffle located at the drain opening of sink, and the need for



Construction of a typical waste disposal unit.



Holpoint



National



Westinghouse

continual feeding of the garbage in small amounts, there was some hazard to the operator in using the appliance.

Interlocking Water-Flow Switches

To insure use of the proper amount of cold water (2 gallons per minute or more), many of the units are supplied with an interlocking water-flow switch; this prevents operation with water turned off, which would clog the unit and possibly cause a stoppage of the drainpipe. Hot water should never be used for flushing, particularly if grease is present in the waste; cold water is necessary to congeal the grease so that it can be broken up and carried away with the waste particles carried along by the water, instead of being deposited in the pipes.

Points to Consider before Purchasing

It is important to check with the local municipal regulations, the appliance dealer or manufacturer, and a qualified plumber on the requirements for a safe and satisfactory installation of a disposal unit, and on the *complete costs involved*, including all needed alterations or additions to the plumbing system. Sometimes piping which was satisfactory for normal use must be changed to provide greater capacity or even an increased slope (e.g., of drain piping under a lawn) to enable it to handle the additional load imposed on the system. Such changes could be very expen-

sive, with today's costs of plumbers' services and supplies.

Town or city dwellers must determine whether there is in force, or is likely to be passed, any ordinance prohibiting the use of a disposal unit because of the effect the discharge of large quantities of food refuse might have on an already overburdened city sewerage system. In some places, the extra sewage load might be deemed to overload sewer lines or some other part of the sewerage system.

The city of Jasper, Ind., after making alterations to its sewage disposal system has installed over 900 garbage disposal units serving 75 per cent of the population. Preliminary reports indicate the project has been a success, with no noticeable increase in water consumption, and it is said that there have been no undesirable effects on the operation of the sewerage system. The change has produced a decrease in the rodent and fly population of the city, of course.

Installation

A proper installation is one having a drainpipe of at least 1½-inch inside diameter and a minimum pitch (slope) of ¼ inch per foot. When a disposal unit is installed with an existing drain system, the plumber should clear the drain by rodding it out all the way to the 4-inch soil pipe. Disposal units cannot be used with ceramic sinks. *A combination sink that has a waste disposal unit and an automatic dishwasher* (or a waste disposal unit connected to the same drainpipe as a sepa-



Youngstown Kitchen



Eureka



American Kitchen

rate automatic dishwasher) may create a very serious health and sanitation problem, if a pipe stoppage should occur. The danger can be avoided by installing an *emergency overflow* between the trap and the dishwasher so that if the drain line does become plugged, the sewage, instead of backing up into the dishwasher, will overflow to a point outside the building—where it can be observed and measures taken to correct the situation.

Cesspools and Septic Tanks

The waste disposal unit is not adapted for use with a cesspool and hence is ruled out for many rural homes. It is considered that where there is a septic tank the use of the garbage disposal unit will involve danger of overloading the septic tank system unless the latter has at least 50 percent larger capacity than would normally be required for a given family. In new homes the following capacities for septic tanks where a waste disposal unit is to be installed have been suggested by a manufacturer of such units.

No. of Occupied Bedrooms in House	Minimum Size in Gal. of Septic Tank (Liquid Capacity)
2 or less.....	500
3.....	750
4.....	1000
5.....	1250

If there is a grease trap, it must either be removed or by-passed in connecting the disposal unit.

CR's tests included the following: (1) Grinding time for various types of waste, including pieces of flower pots; *fibrous wastes* such as corncobs and husks, etc. (2) Energy (in kilowatt seconds) required for grinding material in the disposal unit was determined for each unit; this was not considered important, since consumption of electrical energy per day would be small in all cases. (3) Fineness of grind. Considered the most important property and given the most weight, since the finer the material is ground, the less likely it is to affect adversely plumbing and septic tanks, and fine material will be "reduced" more rapidly in sewage disposal systems. (4) Electrical leakage. As these units when properly installed are solidly grounded, little shock hazard should exist. Safe installation, however, means that all BX cables *must be firmly secured and make good electrical contact in their connectors* (at both ends). The householder should satisfy himself that the wiring has been done carefully and competently. (5) Observations of number of times unit stalled, noise of grinding, etc. Each unit was taken apart and its elements examined, and the hardness of the grinding elements was measured.

All of the units except the *Youngstown* (which was rated $\frac{1}{4}$ hp.) were equipped with $\frac{1}{3}$ hp., single-phase, capacitor-type, 110-volt motors. The *National*, *Westinghouse*, *Youngstown*, and *Homart* had thermal overload protection. All

satisfactorily passed the leakage-current and proof-voltage tests.

A. Recommended

Hotpoint Disposall, Model 10 MW6 (Hotpoint Inc., 5600 W. Taylor, Chicago 44) \$137.

Description: Had water interlock (desirable), but did not have a separate switch to cut off the power. Motor could be reversed by a simple manipulation of the stopper. Essential parts readily removed for servicing. Rubber-cushion mounting.

Performance: Handled all normal food wastes, but fibrous materials required being cut into 2- or 3-in. lengths. Waste was ground rapidly and to a satisfactory fineness. Appliance was found to jam easily on hard materials, and had to be unloaded by hand when reversing failed to free it. Grinding elements were of satisfactory hardness. A very well-made unit, relatively quiet in operation. Guaranteed for 1 yr. against defects in material or workmanship.

National, Model 35-CS (National Rubber Machinery Co., Akron 8, Ohio) \$125.

Description: Water interlock switch available at extra cost of \$11.50. Had built-in switch to cut off power, but no reversing switch. Unit was readily accessible for servicing.

Performance: Handled all normal food wastes without prior preparation. Waste was ground rapidly and to a satisfactory fineness. Did not jam readily in tests. Hardness of grinding units somewhat less than that of other makes tested, but considered satisfactory. Some tendency for food wastes to adhere to underside of stopper and dome of hopper. Considered a well-made unit, but somewhat noisy in operation. Guaranteed for 1 yr. against defects in material or workmanship.

Westinghouse Waste-Away, Model G4A (Westinghouse Electric Corp., Mansfield, Ohio) \$149.

Description: Had water interlock (desirable) and built-in reversing switch, but no separate switch to cut off power. Removal of motor for servicing not as simple as with some other makes. Rubber-cushion mounting.

Performance: Handled all normal food wastes; manufacturer recommended cutting fibrous food material, such as cornhusks and carrot tops, into short lengths, but machine was found to handle such material successfully without that preparation in tests. Waste was ground rapidly to a satisfactory degree of fineness. Some jamming, but this was satisfactorily corrected by reversal of motor. Metal of the grinding elements was the hardest of any unit tested. Well-made, relatively quiet in operation. Guaranteed for 1 yr. against defects in material or workmanship.

B. Intermediate

American Kitchens, Model LSD-33 (American Central Div., Avco Mfg. Corp., Connersville, Ind.) \$120.

Description: Hammer-mill type. Did not have water interlock or separate switch to cut off power.

Performance: Handled all normal food wastes without prior preparation, but a considerable proportion of the waste was coarsely ground. Slow in grinding resistant materials. No jamming occurred during the tests. Unit was relatively noisy. Guaranteed for 1 yr. against defects in material or workmanship.

Eureka Dispos-O-Matic, Model 75A (Eureka-Williams Corp., Bloomington, Ill.) \$120. Identical with *American Kitchens Model LSD-33* except in finish.

Youngstown Kitchens, Model M48 (Mullins Mfg. Corp., Warren, Ohio) \$127.

Description: Had separate hand-operated rotary-type switch that reverses motor rotation each time it is used, but there was no water interlock switch. Allen-type wrench provided to turn motor shaft by hand to help free the device if jammed.

Performance: Instructions recommend breaking of heavy bones into pieces not exceeding 2 in. and warn against grinding fibrous materials such as cornhusks, flower stems, etc. Waste was ground fine and fast, but appliance jammed easily on hard materials. In some cases, wrench was ineffective in freeing the appliance when jammed and hand unloading was required. Grinding elements were of satisfactory hardness. The *Neoprene* baffle, provided to prevent splashing, was found to be more of a nuisance than a help. Food wastes adhered to the top part of the hopper that was outside the path of the flushing water. Noise of operation, about medium. Guaranteed for 1 yr.

C. Not Recommended

Homart (Sears, Roebuck & Co.) \$75, plus freight.

Description: A compact unit easy to install and remove but considered difficult to take apart and reassemble. Very much lighter in weight than others tested. Did not have the desirable water-interlock switch and none was offered. A wrench was provided to turn motor shaft by hand to help free the device if jammed. Rubber-cushion mounting.

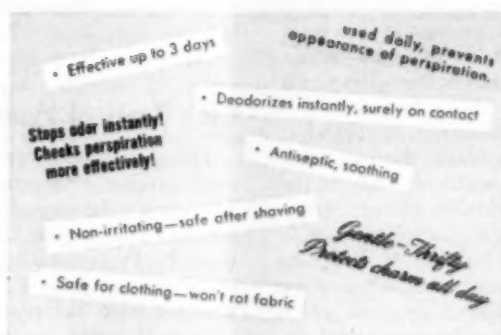
Performance: Handled all normal food wastes, and ground fine, but ground more slowly than other units tested. Some hazard to operator (see text). Small volume of the hopper made it necessary to precut certain types of waste to small size before introducing into the unit. Waste had to be continually fed in small amounts, much smaller than with other units (a disadvantage involving considerable loss of time). The hopper had a tendency to retain small amounts of food wastes. When hard materials were ground, water and waste materials were frequently thrown upward into the sink, even to the floor of the room. Grinding rotor hardness, satisfactory. Relatively quiet in operation. CR believes the user should not attempt to service this unit himself, but should return it to the supplier if repairs are needed.

Anti-Perspirants and Deodorants

DEODORANTS and anti-perspirants are sold in increasing amounts in the United States yearly. According to one survey, personal deodorants were used by 80 percent of the women queried in one area, by men in numbers ranging from 33 to 53 percent. Although the aftereffects of perspiring have been held up in advertising and sales literature for various products as socially undesirable, it should be kept in mind that the activity of the sweat glands has important functions. One is to maintain the body temperature at a normal level, and the second is to assist in the elimination of body wastes. The sweat of a normally healthy individual has little odor until it decomposes. (In certain conditions of disease, of course, the odor of perspiration may be disagreeable.) It is, however, not only a problem of smell but one of injury to the fabric of garments; particularly on women's dresses, perspiration often leaves an unsightly discoloration.

The products which act solely as deodorants are based primarily on antiseptic agents which inhibit the organisms promoting the breakdown of bacteria that cause the formation of by-products with a disagreeable odor. Keeping clean by the use of soap and water is often effective as a deodorant, particularly if one of the new soaps containing hexachlorophene or Actamer is used. According to studies reported in the Journal of the American Medical Association, soaps such as *Dial* are more effective as deodorants than ordinary toilet soap. Hexachlorophene has also been found to have a deodorant effect when included in a body powder or a deodorant stick.

In the last few years, a wide variety of preparations containing chlorophyll have been adver-



tised with extravagant claims for their deodorant properties. Their value taken internally has not been established, although some reputable scientists have held that they may have some value. It is obvious, however, that chlorophyll tablets taken internally cannot provide freedom from the perspiration

odor which is due to decomposition products on the skin. Probably the cosmetic values of chlorophyll were best summed up by Professor Alsoph H. Corwin of Johns Hopkins University, at a meeting of the American Chemical Society, where he commented that chlorophyll "furnishes chemists, physiologists and other scientists with a lot of good clean fun. For other purposes we are not certain that it has any value."

The products that help to inhibit perspiration of the armpits are in demand to prevent unsightly staining of clothing, particularly by women who find inconvenient or unsightly the use of dress shields. The anti-perspirants function by blocking the sweat glands and so helping to check the flow of perspiration in the area to which they are applied. Considerable chemical development has taken place since the solution of aluminum chloride in water first became popular. This preparation in its early form was irritating to the skin of the user and caused damage to the fabric of garments with which it came in contact. One physician in a medical journal not long ago made the observation that he had found a causal relationship between the frequency of abscess of the axillary (armpit) sweat glands and the use of underarm cosmetics. He based this comment on observations of 20 patients suffering from hydradenitis axillaris (inflammation of the armpits), two of whom used a perfumed powder, while the remaining 18 used anti-per-

spirants. It would appear, therefore, that the use of underarm cosmetic preparations should be kept to a minimum.

The chemists are busily working at developing formulas which will inhibit perspiration without causing irritation to the skin of the user, or damage to clothing fabrics. Aluminum preparations have been incorporated in creams, together with a buffer such as urea to minimize danger to garments. The new preparations work more slowly than a highly concentrated aluminum chloride solution but are considered safer to use. It may be noted in passing that garments that come in contact with anti-perspirants should be thoroughly washed and well rinsed to make certain that there are no residues of the anti-perspirant left in the fabric.

Since there is no official definition of just what constitutes a personal deodorant, the consumer who has not given some thought or study to the subject may find the marketing picture somewhat confusing. Toilet water, for example, may be considered a deodorant because of its action in covering one odor with another. There are a number of creams, liquids, and powders which contain an antiseptic that delays bacterial decomposition and prevents the odor of perspiration from becoming offensive. A simple deodorant, however, is considered by the Food and Drug Administration to be a cosmetic and as such is not required to list its essential ingredients on the label. Anti-perspirants, however, are classified as drugs because they affect or modify the body processes and as drugs they are required to carry a statement of the active ingredient—which is usually some compound of aluminum.

One simple home remedy for underarm odor is bicarbonate of soda, which can either be dissolved in water, 1 tablespoonful to a glass, and swabbed on, or applied as a powder. One dermatologist reported excellent results with the use of a preparation made by combining one part of rice starch, five parts of magnesium oxide, 20 parts of sodium bicarbonate, and 34 parts of talc to make a total of 60 parts. Another dermatologist, however, reported that a few of the patients who used the powder mentioned that it produced a slight stinging sensation under the arms.

In an effort to evaluate some of the new products on the market which may offer improvements over the earlier formula of 14 percent to 25 percent aluminum chloride in water, a branch of the military services had an extensive search made of the technical literature in the field. Elaborate test methods and apparatus have been devised for collecting perspiration and

evaluating its odor under various conditions, as well as techniques for evaluating the odor or "osmotic activity" of sweat at various stages of a particular test. It is our considered opinion that at the present time most of the techniques and devices are impressive as laboratory demonstrations but that their usefulness in evaluating various products for eliminating odors or inhibiting perspiration from the consumers' point of view is not established. Subjective methods, actual trial-and-use techniques, are also somewhat impractical because of the wide variation in personal characteristics with respect to sweating.

CR's Tests of Anti-Perspirants

The one laboratory method that seems to show promise is a protein precipitation test for astringency developed at the Research Laboratories of the Purdue University School of Pharmacy by Professor Glenn L. Jenkins and Associate Professor John E. Christian. The method together with the researchers' findings of tests of various astringent agents has been published in the *Journal of the American Pharmaceutical Association*. This test method was used by Consumers' Research to evaluate a number of well-known proprietary products for control of perspiration. In addition, a spectrographic analysis was made to discover whether any of the deodorants and anti-perspirants contained toxic elements such as arsenic, lead, thallium, mercury, or barium. All of the preparations tested were found to be free of these elements. The pH values for all deodorants as determined on the original material are given in the listings. According to several studies in the field, the optimum pH, in so far as perspiration inhibition is achieved without too great damage to fabrics, is around pH 3. It is reported that at higher pH's (lower acidity) the checking of perspiration is less effective.

The effect of the products on fabrics was also measured with use of a cotton fabric. Examination of the results indicated that most of the fabric samples treated decreased only slightly in textile strength. Since it was considered that deodorants which produced a total of 10 percent or less damage under test conditions would be satisfactory in actual use, all deodorants listed may be considered satisfactory in respect to their weakening effect on cotton, except as otherwise indicated in the listings.

The qualities of an ideal deodorant from the consumer's standpoint have been outlined by Drug and Cosmetic Industry, the leading trade

journal in the field, as effective in inhibiting perspiration, efficient in deodorizing action, non-irritating, free from damage to fabrics, non-staining, easy to apply, and quick to dry. The journal observed that it was obvious that the ideal deodorant was yet to be found. The ratings that have been given the products in this test are comparative, and those rated *A. Recommended* are not to be considered as having achieved the ultimate in anti-perspirant formulation. Whether a particular product is designed to aid in inhibiting the flow of perspiration or merely to cover or reduce unpleasant "underarm perspiration odor" is not always clear from the label or advertising claims. The brands included in this study have been evaluated chiefly on the completeness of protein precipitation, according to the method outlined by Dr. Christian and Dr. Jenkins, already described. The products which showed no precipitation or low precipitation of protein would likely be ineffective as a perspiration inhibitor but might have some usefulness as deodorants. The damage to fabrics with which the applied preparations may come into contact has been taken into consideration. Damage corresponding to over 10 percent loss of tensile strength in warp and filling directions has been considered undesirable. Prices listed do not include federal excise tax.

Ratings are as follows.

A. Recommended

- Nonspi Improved Liquid Deodorant** (Standard Laboratories, Inc., 113 W. 18 St., New York City) 2 fl. oz., 59c (29½¢ per oz.). pH 4.1. Essential ingredients, aluminum chlorhydroxide complex and benzalkonium chloride. Precipitation ability good. Loss of fabric strength less than 5%. **1**
- Odo-ro-no Cream Deodorant** (Northam Warren Corp., 50 E. 57 St., N.Y.C.) 1.6 oz., 50c (31-1/5¢ per oz.). pH 4.3. Essential ingredient, aluminum chlorhydroxide. Precipitation ability good. Fabric damage very small. **1**
- Etiquet** (Lehn & Fink Products Corp., Bloomfield, N.J.) Cream; 1.33 oz., 59c (44-3/10¢ per oz.). pH 3.7. Essential ingredient, aluminum sulfate. Precipitation ability excellent. Fabric damage less than 5%. **2**
- Fresh Cream Deodorant** (The Pharma-Craft Corp., 405 Lexington Ave., N.Y.C.) 1.20 oz., 59c (49-1/5¢ per oz.). pH 3.3. Essential ingredients, basic aluminum formate and aluminum chloride. Precipitation ability good. Fabric damage a little over 5%. **2**
- Mennen Spray Deodorant for Men** (The Mennen Co., 63 Dickerson, Newark, N.J.) 1½ fl. oz., 59c (39-3/10¢ per oz.). pH 3.8. Essential ingredients, aluminum chloride and aluminum chlorhydroxide

complex. Precipitation ability good. Fabric damage very small. **2**

Tussy Cream Deodorant Lesquendieu (Lehn & Fink Products Corp.) 2 oz., \$1 (50¢ per oz.). pH 3.6. Essential ingredient, aluminum sulfate. Precipitation ability excellent. Fabric damage less than 10%. **2**

Veto Cream Deodorant (Colgate-Palmolive-Peet Co., Jersey City, N.J.) 1.2 oz., 59c (49-1/5¢ per oz.). pH 3.0. Essential ingredient, aluminum sulfamate. Precipitation ability excellent. Fabric damage very small; best of all tested in this respect. **2**

Veto Spray Deodorant (Colgate-Palmolive-Peet Co.) 1.2 fl. oz., 59c (49-1/5¢ per oz.). pH 2.7. Essential ingredients, aluminum sulfamate and alcohol, 50% by volume. Precipitation ability excellent. Fabric damage around 5%. **2**

Arrid (Carter Products Inc., 53 Park Place, N.Y.C.) Cream; 1.05 oz., 63c (60¢ per oz.). pH 2.7. Essential ingredient, aluminum sulfate. Precipitation ability excellent. Fabric damage less than 5%. **3**

B. Intermediate

Yodora Deodorant Cream (McKesson & Robbins, Inc., Bridgeport, Conn.) 2 oz., 59c (29½¢ per oz.). Essential ingredient not listed on label. Precipitation ability excellent. Fabric damage considerably above 10%. **1**

Dorothy Gray Daintiness Cream Deodorant (Distributed by Dorothy Gray Ltd., 445 Park Ave., N.Y.C.) 2½ oz., \$1 (40¢ per oz.). pH 3.8. Essential ingredient, aluminum sulfate. Precipitation ability excellent. Fabric damage slightly over 10%. **2**

Heed Spray Deodorant (The Pharma-Craft Corp.) 1.2 fl. oz., 59c (49-1/5¢ per oz.). pH 4.1. Essential ingredients, aluminum chloride and aluminum chlorhydroxide complex. Precipitation ability average. Fabric damage around 5%. **2**

Odo-ro-no Instant (Northam Warren Corp.) ¾ fl. oz., 39c (52¢ per oz.). pH 4.2. Essential ingredient, aluminum chlorhydroxide complex. Precipitation ability average. Fabric damage less than 5%. **2**

Revlon Aquamarine Lotion Deodorant (Distributed by Revlon Products Corp., 745 Fifth Ave., N.Y.C.) 2¾ fl. oz., \$1.10 (40¢ per oz.). pH 4.0. Essential ingredient, aluminum chlorhydrol. Precipitation ability average. Fabric damage less than 10%. **2**

Mum Deodorant (Bristol-Meyers Co., 630 Fifth Ave., N.Y.C.) Cream; 0.7 oz., 39c (55¾¢ per oz.). Claimed to offer protection "against odor-causing bacteria." Essential ingredient not listed on label. Precipitation ability good. Fabric damage considerably over 10%. **3**

Stopette Spray Deodorant (Distributed by Jules Montenier, Inc., 440 W. Superior, Chicago 10) 2¼ fl. oz., \$1.25 (55½¢ per oz.). pH 4.1. Essential ingredient, aluminum oxychlorides. Precipitation ability average. Fabric damage less than 5%. **3**

Tussy Liquid Deodorant (Lehn & Fink Products Corp.) 2 fl. oz., \$1.25 (62½¢ per oz.). pH 3.7. Essential ingredient, aluminum sulfate. Precipitation ability excellent. Fabric damage slightly over 10%. 3

C. Not Recommended

Avon Perfumed Deodorant (Distributed by Avon Products Inc., 30 Rockefeller Plaza, N.Y.C.) 2 fl. oz., 63¢ (31½¢ per oz.). pH 3.1. Essential ingredient not listed on label. Precipitation ability very poor. Fabric damage around 5%. 1

Blue Grass Deodorant Spray (Elizabeth Arden, 681 Fifth Ave., N.Y.C.) 2 fl. oz., \$1 (50¢ per oz.). pH 3.5. Essential ingredient, aluminum chlorhydroxide complex. Precipitation ability poor. Fabric damage about 5%. 2

Obay Presto Spray Deodorant (Distributed by The Pharma-Craft Corp.) 2.25 fl. oz., \$1.25 (55½¢ per oz.). Claimed "Stops perspiration worries." pH 4.5. No essential ingredient listed on label. Precipitation ability poor. Fabric damage less than 5%. 3

Univex Home-A-Peel

Peeling potatoes by hand was faster

THE *Univex Home-A-Peel*, an "automatic" fruit and vegetable peeler attachment for the electric food mixer, was advertised as follows: "After years of research, we've designed a fruit and vegetable peeler for home use. . .peels potatoes, beets, onions, apples, oranges, etc., in a matter of a few minutes. . .it's easy—just attach *Univex Home-A-Peel* to your electric mixer. . .turn on the switch and *Home-A-Peel* does the rest." The reader would get the impression that the easiest way in the world to peel potatoes is to use the *Home-A-Peel*. In practice it was quite otherwise.

The *Home-A-Peel* was not a simple gadget. It consisted of no less than 12 parts (several of which were included for adapting the device so that it could be used with a variety of brands of mixers). The assembly and use of the device were explained in 14 steps given in the instructions.

The four women who used the *Home-A-Peel* for CR found it unsatisfactory. It took considerable time and thought to assemble, did not completely remove the skins from potatoes (the low spots and eyes had to be done by hand), and cleaning the bowl and parts and disposing of the peelings were considered messy and troublesome. Only eight small-to-medium-sized potatoes could be peeled with the *Home-A-Peel* at one time. The same number of potatoes could be peeled faster by hand; in fact it took about 2 to 3 times as long (depending on the number of potatoes peeled) with the device as it took to do them the old-fashioned way by hand. All four of the users of the appliance agreed that they would rather do potatoes by hand. Beets, carrots, and apples were also peeled unsatisfactorily, but onions were completely peeled and needed no additional hand-peeling.

C. Not Recommended

Univex Home-A-Peel (Univex Products Co., P.O. Box 98, Somerville 45, Mass.) \$5. Fruit and vegetable peeling attachment (peels by means of a rotating abrasive disk) for use with an electric mixer. Could not be used on the type of mixer with one large beater having "planetary action" (rotating beater moves in a circular path within a stationary bowl). Time-consuming and inefficient, except for peeling onions. (Because of the unpleasant nature of peeling onions by hand, the *Home-A-Peel* might be useful in homes where onions are used often.)



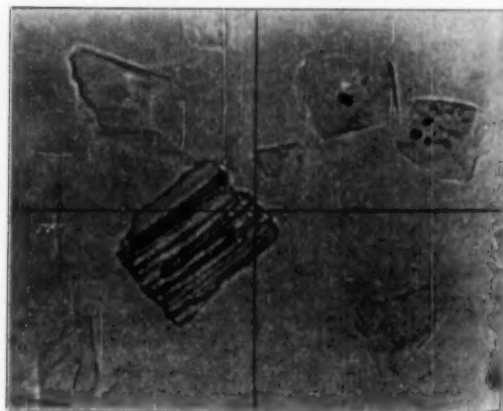
Four potatoes peeled with the *Univex Home-A-Peel*. Note that the skin has not been removed from "low spots."

Scouring Powders

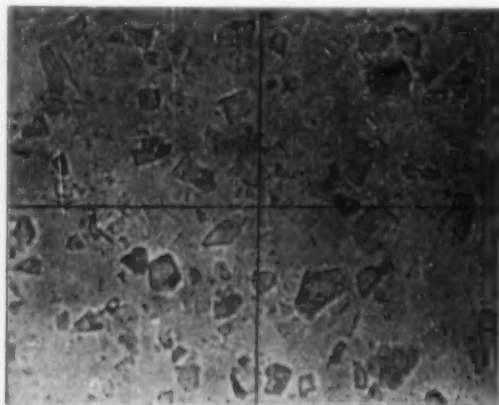
AS THE NAME implies, a scouring powder depends largely upon the abrasive it contains for its cleaning action. (It has been said that about 90 percent of the cleaning is done by the abrasive, and 10 percent by the soap powder or detergent that is commonly present in a scouring powder.) The product should not contain an abrasive that is hard enough to scratch and damage the metal, porcelain enamelware, or paint surface on which it is used. Many housewives will use a cleanser containing a harsh abrasive without thinking of the ultimate effects on her kitchen equipment, and very often she will use more "elbow grease" than is necessary or desirable. Many are in the habit of cleaning plumbing fixtures such as the kitchen sink, the bathroom lavatory, bathtub, etc., with coarse, abrasive scouring materials, whereas they should use on such articles the same kinds of cleansing agents and the same care as they would use with window glass, a mirror, or finely polished metal.

The white surface on plumbing fixtures is usually vitreous (glass) or porcelain enamel and,

except for its containing a pigment to give it color or whiteness, it is much the same substance as the finest window glass or mirror. When a harsh cleanser is used, the surface will become scratched. The scratches are so fine that they are not noticeable at first on a white or tinted background, but continued use of the cleanser will add more and more fine scratches until finally the luster of the vitreous enamel coating has been destroyed and the sink or lavatory has a dull "eggshell" sort of finish, instead of a fine dirt-resisting sheen or gloss. Once the original shiny surface is gone, dirt will become imbedded in the fine pattern of scratches and the surface will thereafter always be hard to clean. A little soap or synthetic detergent and water will remove the dirt from a windowpane, and the same is true of the surface of new plumbing fixtures, refrigerators, ranges, and cabinets. Stains, dirt, and grease can be washed away; they do not need to be scoured away with abrasives. When the stain or grime is particularly stubborn, and soap and water do not remove them readily,



A



B

Figure 1

A—Old Dutch Cleanser containing quartz and volcanic dust. The "striped" grain in the center is volcanic dust, which in the advertising copy is given the more glamorous name of "Seismotile" (apparently a coined word).

B—Feldspar abrasive of Bon Ami. Particles are fairly uniform in size, and notably finer than the quartz in other powders. Magnifications, 150X.

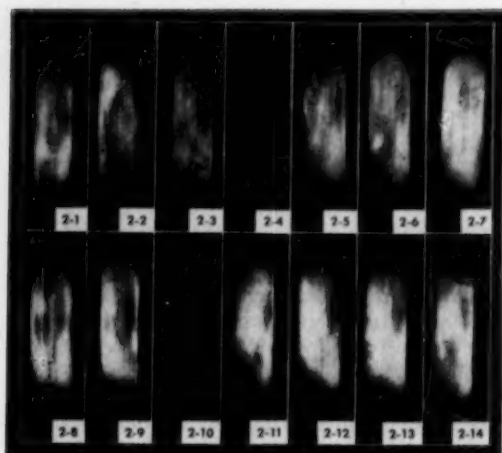


Figure 2

Glass slides showing results of abrasion tests of the scouring powders tested by CR. The powders were: 2-1, Ajax; 2-2, Babbitt's; 2-3, Bab-O; 2-4, Bon Ami; 2-5, Crystal White; 2-6, Kirkman; 2-7, Kitchen Klenzer; 2-8, Light-house; 2-9, Old Dutch; 2-10, Rik Rak; 2-11, Speedup; 2-12, Sunbrite; 2-13, Swift's; 2-14, Wilbert's Dot.

scrubbing with a stiff bristle brush with plenty of soap and hot water will do the job. If a scouring powder is to be used be sure it is one containing a suitable abrasive or a known mild abrasive such as the whiting mixture listed under *A. Recommended*. Housewives are often fooled by the quick and apparently harmless action of certain fast-cutting gritty powders that derive their cleaning abilities from harsh abrasives.

Many of the scouring powders contain quartz, which is very good for removing adherent dirt, but since it is harder than glass (which is the surface coating on vitreous enamelware), it scratches and frosts the surface in time, sometimes rather rapidly. Surfaces softer than glass, such as the lacquer or baked enamel coating on a refrigerator or washer, are, of course, even more susceptible to damage.

In the study just finished by CR, 12 out of 14 popular household cleaning powders were found to contain pulverized quartz as the major abrasive ingredient; these, if used for general scouring in the home, would cause marked scratching of many surfaces and finishes. All such quartz-containing powders should be used only for rough scouring, where the quality of the gloss or surface finish is of no importance, or where scratching is present unavoidably anyway, as, for example, on the tile floors of a bathroom, or on marble or other stone steps.

The tests included a petrographic examination

of the abrasive used, and a test for abrasiveness. In the examinations by the petrologist, the abrasive was separated from the other ingredients of the cleanser and analyzed under a petrographic (polarizing) microscope. The usual techniques of measuring indices of refraction, optical character, use of interference figure, crystal twinning, and measuring the sizes of the abrasive particles were employed.

In the laboratory abrasion test, new glass slides as used in microscopy were rubbed by a reciprocating motor-driven mechanism for 100 single strokes with 0.05 gram of the scouring powder moistened with water. The weight on the abrading head (0.3 square inches in area) was 2 pounds, considered typical of ordinary use of a powder in scrubbing a sink. The appearance of the slides at the conclusion of the test can be seen in Figure 2. The glass slides for the tests of whiting are not shown, as none of the samples of whiting tested marred the slides noticeably.

All of the cleansers gave a strong alkaline reaction to the water in which they were stirred, except *Bon Ami* which was only mildly alkaline. The price given in parentheses is the calculated price per pound of the cleanser.

A. Recommended

Mixture of whiting (available from paint and hardware stores for about 15c a lb.) and trisodium phosphate (sold under the brand names of *Oakite* and *Climalene*, among others) in the proportion of about 9 parts of whiting to 1 of trisodium phosphate. (Not for use on paint, varnish, or lacquer, which would be adversely affected by the alkaline trisodium phosphate.)

Bon Ami (The Bon Ami Co., 17 Battery Pl., New York 4) 12c for 12 oz. (16c). Contained feldspar. **2**

Rik Rak (Newport Soap Co., Oakland, Calif.) 12c for 14 oz. (14c). Contained dolomite and calcite with a small amount of quartz. **2**

B. Intermediate

The following contained pulverized quartz as the major abrasive ingredient and, while suited for rough scouring operations, as for removing rust and paint from rough or unfinished materials, are not recommended for general scouring in the home involving the finely finished smooth surfaces of porcelain enamelware sinks and lavatories, or painted and lacquered walls, cabinets, etc.

Babbitt's (B. T. Babbitt, Inc., 386 Fourth Ave., N.Y.C.) 9c for 14 oz. (10c). **1**

Crystal White (Colgate-Palmolive-Peet Co., 85 Hudson St., Jersey City, N.J.) 6c for 13 oz. (7c). **1**

Speedup (Distributed by American Stores Co., Philadelphia) 9c for 14 oz. (10c). **1**

Ajax (Colgate-Palmolive-Peet Co.) 12c for 14 oz. (14c). **2**

Bab-O (B. T. Babbitt, Inc.) 12c for 14 oz. (14c).	2
Kirkman (Kirkman & Son, Div. of Colgate-Palmolive-Peet Co.) 10c for 14 oz. (11c).	2
Kitchen Klenzer (Fitzpatrick Bros., Inc., 1300 W. 32 Pl., Chicago) 10c for 13 oz. (12c).	2
Lighthouse (Armour & Co., 1353 W. 31, Chicago) 12c for 14 oz. (14c).	2
Old Dutch (The Cudahy Packing Co., Omaha, Nebr.) 12c for 14 oz. (14c). Also contained small amount of volcanic dust.	2
Sunbrite (Swift & Co., 4115 Packers Ave., Chicago) 9c for 13 oz. (11c).	2
Swift's (Swift & Co.) 13c for 14 oz. (15c).	2
Wilbert's Dot (Wilbert Products Co., Inc., 805 E. 139 St., N.Y.C.) 12c for 14 oz. (14c).	2

New Claims for Gasoline

SHELL Oil Company is introducing a new premium gasoline, trademarked *TCP* because of its containing a substance called tricresyl phosphate. Claims are made that this gasoline increases power "up to 15 percent" and consequently gives more mileage, and that there will be an increase in the life of the spark plugs "up to 150 percent." Shell suggests that the second tankful of the new gasoline will show a marked improvement in engine performance. The claim is also made that while with modern, congested city driving the spark plugs need to be replaced at about 2500 miles, this period can be extended to 4500 to 5000 miles with *TCP*. With normal driving, according to Shell, replacement is needed at about 6500 miles; this is said to be increased to 10,000 to 15,000 miles with *TCP*. (According to one authority, lead-fouling of spark plugs begins during periods of slow driving, as in the city, and becomes troublesome when a car is driven faster, as on a vacation trip.) A question might reasonably be raised about the mileages stated by Shell in view of the fact that spark plug manufacturers recommend *cleaning* of plugs at 3000 to 5000 miles, and some recommend replacement of plugs at 10,000-mile intervals to maintain the engine at good efficiency and to anticipate the possibility of failure. Mechanics inquired of regarding this question agreed that only very rarely spark plugs had to be replaced before 10,000 miles, and that usually they served satisfactorily to 15,000 or more miles on cars with moderate compression ratios, irrespective of the kind of gasoline used. (Under favorable conditions plugs may serve for 20,000 to 40,000 miles without failure.) On cars with high-compression ratios, spark plug life is usually lower, perhaps around 8000 miles. The new resistor plugs such as used by *Plymouth* (a fairly-low-compression engine) are claimed to have double the life of plugs of the regular type.

TCP is being compared in importance with the development of ethyl gasoline some 30 odd years ago, but it would not appear that such a com-

parison is warranted. Information available to CR indicates that *TCP* under certain conditions reduces the fouling of spark plugs which comes from the lead contained in the ethyl gasoline, but that there may be some detrimental effects which arise with the use of *TCP*—as, of course, there are with most of the new additives in oil and gasoline. Some who have tried the new product in airplane engines have not achieved the desired results, and the merits of *TCP* for this use, therefore, have not been sufficiently established. In aircraft the problem is one of lead deposits, and it is considered that the problems raised by lead-fouling do not become serious below 100 octane. Gasoline used in consumers' automobiles does not as yet have such high octane numbers. There is, besides, a tendency to use butane to improve the octane rating of the newer automobile fuels, instead of lead.

One subscriber, who was told by his service station operator that use of *TCP* premium gasoline would more than offset the price difference over regular gasoline in better gasoline mileage, kept a careful record of his gasoline consumption on a 3100-mile trip. He used regular gasoline for the first half of the trip and Shell *TCP* for the return journey; both ends of the route were at an elevation fairly close to sea level. This consumer did not find a significant difference in miles per gallon on a *Studebaker Champion* with overdrive when *TCP* was used, as compared with "regular" gasoline.

The probabilities are that Shell's example in attempting to differentiate its gasoline from the "run-of-the-market" will be followed by other refiners. No doubt a number will advertise some special feature or ingredient in their gasolines, in an effort to offset the immediate competitive advantage of Shell's large-scale advertising of its *TCP* additive, which will doubtless influence many to shift from another brand to Shell's.

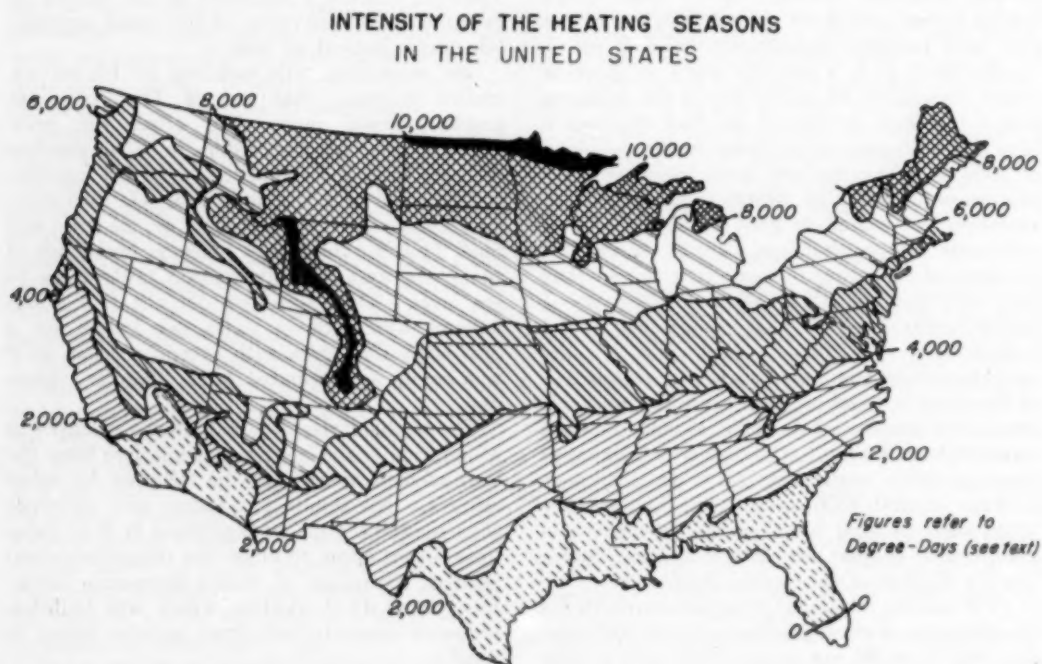
The Climate as a Factor in the Selection of Fuels and Heating Equipment

THERE is such a wide variation in the severity of the heating season over the length and breadth of the United States that no general rules for the selection of either fuels or heating equipment are possible.






In areas where only a moderate amount of heating is required, perhaps only for short periods of time, the chill can be taken out of the house on cold days by fireplaces, portable heaters, or the supply of heat from a central heating plant to one or two rooms only. In places where the climate is normally mild, much use is made of fuel that would generally be considered too expensive for use in severe climates; thus, electricity and bottled gas are in good demand for heating in parts of the South and Southwest,

and also in some parts of the Northwest, and in South Central states where in some cases rates for electric current are very low.

In the cooler regions, the amount of heat required during the heating season is often so great that the fuel must be chosen with cost saving as a primary consideration. While the North is considered the coldest part of the country, no simple generalization can be made with respect to latitude, for there are wide variations which enter into the determination of climate in any given latitude. Thus we find that the city of Dalhart, Texas, will normally require more fuel per season than Walla Walla, Washington, which is about 700 miles further to the north. We find, too, that Colorado, much of which is



Weather Severity During the Heating Season
(as referring to the accompanying map)

Degree-Day Range and Map Symbol	General Description of the Weather Conditions	Design Temperature of Heating System ¹ and Corresponding Fuel Consumptions ²	General Types of Heating Equipment Needed or Used
8000-10,000 	Very long severe winters with almost continuous freezing and much sub-zero weather.	-35°F to -10°F 59.2 to 74 lb. coal 5.1 to 6.4 gal. oil 1300-1650 cu. ft. mfd. gas 700-880 cu. ft. nat. gas	Heat required in every room, preferably as supplied by a central system. Periphery of house is likely not to be long enough to permit the house to be adequately heated by baseboard radiation. All forms of electric heat will usually be prohibitive in cost.
6000-8000 	Severe weather; considerable freezing for prolonged periods; frequent sub-zero weather of moderate duration.	-20°F to 0°F 52.2 to 70 lb. coal 4.5 to 5.0 gal. oil 1200-1600 cu. ft. mfd. gas 630-840 cu. ft. nat. gas	Heat required in every room, preferably as supplied by a central system. The periphery of the house will usually be sufficient to permit use of steel baseboard radiation, but if cast-iron baseboard radiation is used, heating units will often be required along partitions as well as along exterior walls.
4000-6000 	The so-called normal or "average" winter of the U.S. Intermittent freezing weather of relatively short duration. Sub-zero temperatures occur only infrequently.	-10°F to +10°F 40 to 60 lb. coal 3.4 to 5.2 gal. oil 900-1350 cu. ft. mfd. gas 480-720 cu. ft. nat. gas	Central heating desirable, but often replaced by parlor stoves, especially in warmer sections of zone. Hot-water heating systems are very popular in this zone. Heat requirements still too high to make electricity practical.
2000-4000 	Milder winters; less frequent freezing and then of short duration; sub-zero weather rare; heating season short in southern part of this zone	-5°F to +20°F 25 to 50 lb. coal 2 to 4 gal. oil 525-1050 cu. ft. mfd. gas 280-560 cu. ft. nat. gas	Heating is frequently limited to living rooms, with rooms above supplied by registers. Parlor stoves very popular in less expensive homes. Application of baseboard radiation very satisfactory, and electricity and bottled gas are often used as a source of heat.
0-2000 	Very mild winters; heat will be needed at times, particularly in the upper part of the zone. In the lower part, uncomfortably cold weather will be largely confined to periods of storm.	+15°F to +30°F 0 to 28 lb. coal 0 to 2.4 gal. oil 0-525 cu. ft. mfd. gas 0-280 cu. ft. nat. gas	This region favors use of intermittent types of heat, such as parlor stoves; portable heaters using bottled gas, electric, or mfd. gas; and fireplaces. Central heat likely to be troublesome unless automatically fired.

¹Design temperatures represent minimum outdoor temperature at which the system can provide sufficient heat. Range shown is that of 15 representative cities in each of the five zones. The colder temperatures are usually inland and at higher elevations; warmer near the coasts and in the southern parts of the zones. There will be in most regions occasional periods where the heating system cannot satisfactorily handle the load, owing to abnormally low temperatures. The heating system or its designer should not be blamed for this, as it might often not be feasible from an economical standpoint to provide a heating plant which could give complete comfort throughout the house during a day or two of extremely low temperature that occurs only very rarely.

²Fuel consumption refers to the amount of fuel that the system may be expected to use in the course of the year for each square foot of equivalent installed steam radiation. The range of fuel consumptions shown corresponds to the range of degree-days included in each zone. Square feet of hot-water radiation required can be converted to steam equivalent by multiplying the figure for hot-water radiation by 0.625. For purposes of this table 80% over-all house-heating efficiency was assumed for all fuels, whether system is steam, hot water, or warm air.

Example: To compute the probable annual coal consumption in the 4000-6000 degree-day zone for a house having 600 sq. ft. of hot-water radiation:

600 x .625 = 375 sq. ft. equivalent steam radiation

From table, 40 to 60 lb. of coal equals the average or normal consumption in this zone for each sq. ft. of steam radiation.

Thus: 375 x 40 = 15,000 lb. coal might be expected to be the normal consumption with 4000 degree-days, and

375 x 60 = 22,500 lb. coal with 6000 degree-days

The annual tonnage of coal required for this home should be between 7¼ tons (4000 degree-days) and 11¼ tons (6000 degree-days).

There are necessarily wide variations in all estimates of expected fuel consumption, since there are large differences created by the extent to which the house is exposed to the wind, degree of exposure to sun, character of the construction, particularly with respect to insulation and tightness, and many other factors.

at a high altitude, contains some of the coldest towns in the country, even though it is located about midway between the northern and southern boundaries of the United States.

The accompanying map gives a guide to the

severity of climates in the different regions of the country. This map shows five very general zones of fuel requirements during the heating season, based upon what are known as iso-degree-day lines; that is, lines along which the

fuel requirement for a heating season is approximately constant. Thus a 4000 to 6000 degree-day zone is one in which the sum of the degree-days for a 12-month period falls into the range of 4000 to 6000. A degree-day is a unit now widely used in estimating fuel consumption and requirements. For any one day when the mean outdoor temperature is less than 65°F, there exist as many degree-day units as there are degrees difference in temperature between the mean temperature for the day and 65°F. A day with a mean (average) temperature of 40° would con-

tribute 25 degree-days, since there is a difference of 25° between 65 and 40. (A month of 30 days averaging 25 degree-days per day would contribute 750 degree-days to the heating-season total.) Some variation in seasonal intensity is necessarily to be expected within the rather wide zones shown on the map. The weather is usually milder at the southern limits of a zone, and near bodies of water, and less mild at higher elevations. Where information of a more exact character is needed, the nearest U.S. Weather Bureau should be consulted.

Abridged Cumulative Index of Previous 1953 Consumers' Research Bulletins

	Month	Page		Month	Page		Month	Page
Air conditioning†	Apr.	5-11	Closet drier†	Apr.	24-25	Mildew prevention	June	3
Aluminum foil, care in oven use	Aug.	4	Clothes dryers†	May	19-22	Motion pictures†	each issue	
Automobiles			Clothing, men's, casual	Aug.	3	three-dimensional	Aug.	2, 30
Dodge Coronet V-8	Feb.	23-24	Consumers' Research, not to be confused with any other organization	July	21	Paints and painting	Jan., 12, 19; Apr., 17-18; Aug., 22-24	
Plymouth Cranbrook; Chrysler New Yorker	Mar.	5-7	Corrections and emendations†	Jan., 21; Feb., 7; Mar., 14; Apr., 11; May, 26; July, 26; Aug., 21		Penicillin, caution in use	Aug.	33
Ford 6 and V-8; Plymouth Cranbrook (with overdrive); Pontiac Chieftain DeLuxe	Apr.	12-16	DIET, in human body	Aug.	30	Phonograph records†	each issue	
Buick Roadmaster 72R; Cadillac 62; Chevrolet One-Fifty; Chevrolet Bel-Air Powerglide; Chrysler Windsor DeLuxe; DeSoto Firedome S-16; Hudson Hornet; Hudson Super Wasp; Mercury Custom; Packard Clipper	May	10-18	Dermatitis, contact	July, 4; Aug., 33-34		Poisoning hazards	May, 28; June, 20	
Nash Statesman Super; Oldsmobile 98; Hudson Super-Jet; Lincoln Capri Hard Top; Nash Rambler Country Club; Studebaker Regal Commander; Willys Aero Eagle (plus 4-page table rating 1953 cars tested)	June	5-20	Detergents, synthetic bars, for toilet use†	Apr.	34	Pork, thorough cooking essential	Aug.	34
Buick Special Dynaflo Series 40; Studebaker Champion	July	20-21	household†	Mar., 7; Aug., 10-11		Projectors, slide†	Apr.	18
anti-static agents for seat covers†	Jan.	20-21	Developer, fine-grain, film†	Aug.	15	Raincoats, plastic, men's†	June	27-29
batteries, storage†	Mar.	12-14	Dishwashers, automatic†	June, 21-24		Ranges, electric†	July	11-16
"additive"†	Apr., 3; May, 2, 22-24; June, 2, 30-32		faucet†	Jan., 16-17		Refrigerator, electric, new type†	July	17-18
fog lamps, effectiveness	Mar., 30		Dresses, silk shantung, bias cut, cleaning problem	Aug., 4, 33		Scythe, power†	June	25-26
M.G. (British car)†	Jan., 18-19		Editorial	each issue, page 2		Sewing machine, "zigzag" (Singer)†	Feb.	15-16
night driving, problems	Feb., 20-22		Floor coverings, plastic, waxing	June, 3; Aug., 3		Shirts, men's, sport†	July	5-10
oil additives	Feb., 9, 24; May, 30		Food choppers, no-clamp†	Feb.	8-9	Shoe dressings, white†	July	27-28
oil filters	Apr., 28		Food flavoring agent, coumarin	Aug.	34	Shoe-fitting fluoroscope, danger	May, 4; Aug., 4	
pistons, "sealing"†	Mar., 25-26		Food mixers, workshop attachments	Aug., 3		Smoking, as cause of cancer	Aug., 24-25	
testing at CR	July, 22-24		Food supplements vs. proper diet	Aug., 25		Snow plow†	Feb., 17	
tires†	Jan., 10-12		Free enterprise and consumers	Aug., 11		Sound, three-dimensional	Aug., 20-21	
			Freezers, ice-cream, electric†	July, 25-26		Switches, canopy†	Aug., 26-27	
Batteries, flashlight†	Aug., 12-15		Governmental power, increase	Aug., 25		Table, folding†	Jan., 28	
Beaters, hand, egg†	Apr., 23		Hair lacquers, spray type	Aug., 4		Tanks, hot-water, corrosion protection	May, 29-30	
Binoculars for eyeglass wearers	Aug., 21		Hearing aids, advertising†	Feb., 18-20		Tarnish remover, electrolytic†	July, 28	
Bureau of Standards, studies on battery additive†	Apr., 3; May, 2, 22-24; June, 2, 30-32		transistor-type	July, 4		Television receivers, 1953†	Jan., 13-15; Mar., 8; July, 29-30	
Cameras, twin-lens reflex†	Mar., 9-11		Heating equipment			Thermometers, clinical†	Jan., 24-25	
Carbon tetrachloride poisoning	May, 28; June, 20		fuel-saving thermostat†	Apr., 26		Tool holder†	May, 27	
Carpet sweeper†	May, 5-9		furnaces, floor, gas-and-oil-fired†	Feb., 12-14		Toothbrushes, nylon, improved	Aug., 33	
Cleaners, copper and brass†	Feb., 10-11		radiation, baseboard†	Jan., 5-9		Towels, bath†	Jan., 22-23	
Ovens†	May, 25-26		Hooks, glued-on†	Aug., 19		dish†	Mar., 27-29	
Clocks, electric†	Mar., 17-19		Humidity indicators†	Feb., 5-7		Tuners, AM-FM, "hi-fi"†	Mar., 22-25	
			Insect repellents	June, 3-4		Vacation safeguards	July, 2, 18-19, 24	
			Insecticide vaporizers	Mar., 29		Washers, automatic†	Mar., 15-16	
			Ironing synthetic and artificial fabrics	Aug., 9		dryer combination†	May, 19-22	
			Irons, electric†	Aug., 5-9		Water heaters, tankless	Mar., 21	
			Laundry cart†	Jan., 27-28		Water softening†	Feb., 25-30	
			Laundry marking pens†	Aug., 28-29		Water supply filters and "conditioners"†	Aug., 17-19	
			Lawn edger, hedge trimmer†	June, 25-26		fluoridation	Jan., 4; May, 4; July, 4; Aug., 16	
			Lights, closet†	Mar., 20-21				
			Loud-speakers, high-fidelity†	Apr., 19-22				
			Masonry, waterproofing, claims†	Aug., 3-4				

Indicates that listings of names or brands are included.

†Indicates that listings of names or brands are included.

TV and FM Antenna Rotators

THE RADIO WAVES sent out by a TV station travel in straight lines from the transmitting antenna to the one at the receiver. Most TV receiving antennas are so designed that they must be "pointed" toward the transmitting station to give best and clearest reception through intercepting and feeding to the receiver the largest possible proportion of the transmitted high-frequency signal.

In some urban areas, such as New York City and Los Angeles, the transmitting antennas for most of the several stations operating are grouped at one point so the user of the television set can use an antenna which has been set once for all in the right direction. In many rural and suburban areas, however, TV reception may be possible from several stations, and two or more may be at different directions from the receiver. In such instances, the viewer may either install separate antennas, each of which is "pointed" in a desired direction and securely fastened, or he may install a single antenna with an "antenna rotator" which permits the antenna to be turned to any particular direction at will from a control device beside the set while the receiver is being tuned to the channel.

Each of the antenna rotators which Consumers' Research has tested consisted essentially of two separate units connected by wiring: (1) the antenna driving motor which is usually mounted at the top of the antenna mast and (2) the control box, which is normally set on top of the TV receiver and has the necessary switching mechanism for operating the motor together with a means for indicating the direction in which the antenna is "pointing." The electrical connection between the two units usually is a 4-conductor cable, similar in appearance to the flat transmission line which brings in the television signals from the antenna to the set.

When TV antenna rotators were first marketed, there was no provision made at the control box to indicate the direction in which the antenna was pointing and it was necessary in some instances to count the number of seconds the rotator was on, or to go outside the house and there observe whether the antenna was pointing



Three methods were used to indicate antenna direction. **Left**—The Radiart TR-2 with four lights, under the North, East, South, and West sectors. **Center**—The Crown RC-6, with a small meter. **Right**—The Alliance HIR 2, with a movable light indicating 36 positions.

in the right channel direction. The improved rotators which are now used employ several methods to obviate this difficulty. The *Alliance HIR 2* has an escapement wheel pawl mechanism built into the control unit which indicates by a small light the antenna position. A possible disadvantage of this mechanism was that the minimum angular adjustment was limited to about 3-7° depending upon the direction of rotation of the control knob. (In some locations, where two stations may interfere with each other due to their location or to poor adjustment of the receiver, this uncertainty may be important.) The *Radiart TR-2* gave only 8 different indications of direction which were 40° to 50° apart in angular position and indicated by lights. These angle differences are so large that it would be necessary to tune the antenna by trial and error to the point of maximum signal strength within a particular segment. This, of course, reduces the advantage afforded by a rotator, and many persons would find it difficult to do the tuning satisfactorily. The *Crown RC-6* and others used a small meter to indicate direction, which functioned by a principle similar to that in common use for the gasoline gauge of automobiles. Unfortunately, this device did not afford the desirable precision, and there was a 10 to 20° difference in the indication depending upon the direction of rotation of the antenna. Direction indications in all the units tested using a meter were subject to similar inaccuracy and were also subject to changes resulting from varia-

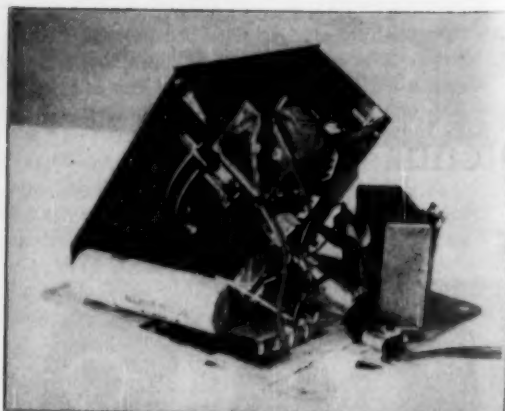


Photo showing the "insides" of the Alliance HIR 2 control unit. Note the complicated switching mechanism used.

tions in line voltage. In some localities, particularly in the rural areas, these line voltage variations may be quite large.

CR's tests were chosen to evaluate the general usefulness of the units and consisted mainly of an engineering examination in which the following were determined: maximum angle of rotation, the time for a complete revolution, the smallest increment of rotation, the size of the antenna mast and post accommodated, noise during operation, and operating characteristics at below-zero temperatures. All of the rotators turned 360° or slightly more. Prices given are list prices; rotators are often available at mail-order radio and TV supply houses at a considerable discount.

The following points are all important in considering the purchase of an antenna rotator:

1. A rotator should be able to turn the antenna through a full circle (360°).
2. It should be strongly made so as to be able to resist the stresses imposed by wind and ice.
3. Clamps, clamping screws, and other hardware should be rustproof or heavily galvanized; lock washers should be used throughout.
4. Weather protection should be such that the operation will be unaffected by blowing rain, snow, sleet, or ice.
5. The position-indicating device should show clearly and correctly the direction in which the antenna is pointing.

B. Intermediate

Alliance HIR 2 (Alliance Mfg. Co., Alliance, Ohio) \$45. Rotation time, 60 sec. Maximum outside diameter of mast accommodated by brackets, 1 3/4 in. Minimum angular adjustment, 3° to 7°; a smaller adjust-

ment may be desirable in some instances. Motor housing judged watertight. Operation slowed down in below-zero weather. Turning torque, less than average. Correlation between actual and indicated antenna position, good, within approximately 5° during 360° turn of antenna. Judged best unit tested for single- or double-bay antenna arrays.

* * *

Crown RC-6 (CAR-6) (Crown Controls Co., Inc., New Bremen, Ohio) \$50. Rotation time, 60 sec. Maximum mast diameter, 2 in. Minimum angular adjustment, about 1°, very good. Motor housing well sealed to keep out rain, snow, or sleet. Failed to operate at -5°, and unit would be rated C. *Not Recommended* for use in those areas where correspondingly low winter temperatures prevail at times. Turning torque, average. Correlation between actual and indicated antenna position, fair, non-linearity in meter indicating device was partially compensated for in NESWN scale markings by use of a non-uniform scale.

Radiart, Model TR-2 (The Radiart Corp., Cleveland 13) \$50. 45 sec. for full-circle rotation (faster than average), adequate. Maximum mast diameter, 2 in. Minimum angular adjustment, about 3° to 5°, ample. Case appeared watertight. Operated satisfactorily in temperatures below zero. Turning torque much higher than any other unit listed, desirable. Inadequate correlation between actual and indicated antenna position, requiring cut-and-try adjustment in tuning; indicating lights showed direction only in wide increments, of about 40°. Most sturdy and powerful unit tested.

* * *

Judged less satisfactory than the three preceding:

Alliance DIR 3 (Alliance Mfg. Co.) \$45. Time for complete rotation, 60 sec. Mast diameter, 1 3/4 in. Motor housing judged watertight. Operation slowed down in below-zero weather. Smallest angular increment turned by slight movement of control, about 1°, very good. Turning torque, an indication of the motor's ability to rotate the antenna, less than average; high torque is advantageous, particularly if the antenna array is a large and heavy one. Correlation between actual and indicated antenna position, poor. Meter indicator.

Radiart CDR, Model TR-II (The Radiart Corp.) \$45. Rotation time, 42 sec. (faster than average). Maximum mast diameter, 1 3/4 in. Minimum angular adjustment, about 1°, very good. Weather seals in motor housing judged not as complete or positive as in other rotators tested; might have trouble with water freezing. Below-zero operation, satisfactory. Turning torque, average. Correlation between actual and indicated antenna position, very poor; error more than 40° at Northeast end of scale. This error could have been reduced considerably by proper spacing of NESWN markings on meter face (see listing of *Crown RC-6*) since the indicator was approximately correct when the antenna pointed South. *Model TR-12* at \$48 is similar but includes separate thrust bearing (for use with heavy arrays).

Two Refrigerators and a Combination Refrigerator-Freezer

Except for a trend to push-button defrosting and the new principle of making ice cubes incorporated in the Servel "Ice Maker" refrigerator (reported in CR Bulletin, July 1953) there have been no significant changes in the most recent refrigerators as compared with the 1952 models. In fact, many manufacturers have continued their 1952 lines into 1953, in some cases with no change and in others with incorporation of only minor changes. Because of these circumstances Consumers' Research has found it advisable not to carry on tests on any considerable number of 1953 model refrigerators.

AS CR has reported, its tests of refrigerators with the new built-in automatic or semi-automatic defrosting devices have shown that the semi-automatic or push-button type defrosting unit was much superior to defrosters of the fully automatic kind. The semi-automatic defrosting is under the control of the user, and can be started whenever desired or convenient; with this system, frozen foods and ice cubes can be moved from the freezer space to the general storage space for the short time required for defrosting the freezing unit. On the other hand, with fully automatic defrosting, there is a major disadvantage in that very commonly the water which comes from the melting of the accumulated frost drips down on the foods stored in the freezing chamber, and is then refrozen. When this happens, the chamber becomes blocked with ice, and the food packages can be removed only with great difficulty and inconvenience.

Almost any modern refrigerator can produce temperatures close to zero in the freezing compartment provided the room temperature is not too high and the control knob is turned to the coldest position, but it is not feasible to do this

in many refrigerators because the lowering of the control temperature will bring the temperature in the general food storage compartment down below the freezing point, which is undesirable for obvious reasons. Forty-three degrees is about the right temperature for the general food storage compartment, and although no standards have been adopted by the industry for the temperature in the freezer space, CR holds that the new refrigerators with a full-width freeze chamber should, to warrant an A rating, be capable of maintaining a temperature of 10 degrees—or close to this figure—in the freezing chamber when the temperature in the general food storage space is not below 43 degrees at a room temperature of 90 degrees. In tests carried on recently, very few refrigerators have been able to meet or come close to this requirement.

The two refrigerators which form the subject of the present report would, by proper adjustment of the baffles, give temperatures that were considered satisfactory. It should be borne in mind, however, that to obtain satisfactorily low temperatures in the freezer space, the costs of operation will necessarily go up through added use of electric current. For example, lowering the temperature in freezer spaces of the *Crosley DAE-95* and *Kelvinator KPC* about 9 degrees increased the operating cost by 22 and 16 percent, respectively. In the test of the *Kelvinator* combination refrigerator-freezer, it was found that when the temperature in the freezer space was 4.7 degrees (15 degrees lower than the average of freezer space temperature in the two refrigerators with baffles open corresponding to higher freezer-space temperature), operating costs per cubic foot were about 45 percent higher.

All three of the units listed satisfactorily passed electrical safety tests, which included proof-voltage or breakdown test, and a measurement of current leakage.

Ratings are cr53.

A. Recommended

Crosley Shelvador, Model DAE-95 (Crosley Division, Avco Mfg. Corp., 1329 Arlington, Cincinnati 25) \$340.

Dimensions:

56 in. high, 31½ in. wide, 30 in. deep. Total rated capacity, 9.5 cu. ft. (actual, 9.5 cu. ft.). Frozen food storage space, 1.1 cu. ft.

Description:

A single-door refrigerator with freezer compartment at the top extending the full width and depth of the box. A baffle to control flow of cold air from the evaporator downward into the general food storage compartment is attached at the rear of the plastic tray located just below the evaporator. This refrigerator had 5 shelves and a butter compartment in a recess of the door. The defrosting unit, of the push-button or semi-automatic type, consisted of heating elements around the evaporator.

Performance in Test:

Time to lower temperature from 110° to 46°, 2.76 hr. (0.29 hr. per cu. ft.), very good. In no-load test at 90° with control set to give 43° in storage compartment, average air temperature in freezer space with baffle closed, 10.5° (good); with the control baffle open, temperature was about 9° higher, which is unsatisfactory, if there is frozen food in the freezing chamber (desirable if no frozen food is in the freezing chamber). Percent running time, 21.9 with baffle open, 28.4 with baffle closed (both satisfactory). Cost of operation per month, \$1.26 (13.3c per cu. ft.) with baffle open (better than average); \$1.53 (16.1c per cu. ft.) with baffle closed so as to give the desirable temperature of around 10° in the freezing chamber. Time required to freeze 3.5 lb. of ice cubes, 1.8 hr. (0.5 hr. per lb.), fast. Maximum temperature of ice cream during defrosting, 25°. (Ice cream was normal in color, texture, and appearance, and there were no signs of melting having occurred.) Some sweating of cabinet at 89° room temperature and 81% and higher relative humidity.

Kelvinator, Model KPC (Nash-Kelvinator Corp.,

14250 Plymouth Rd., Detroit) \$340.

Dimensions:

56½ in. high, 28 in. wide, 29½ in. deep. Total rated capacity, 9.4 cu. ft. (actual, 9.4 cu. ft.). Frozen food storage space, 1 cu. ft.

Description:

A single-door refrigerator with freezer compartment at the top extending the full width and depth of the box. Equipped with a baffle to control flow of cold air from the evaporator downward into the general food storage space. The defrosting unit, of the push-button type, operates by passage of hot refrigerant gas into the evaporator coils.

Performance in Test:

Time to lower temperature from 110° to 46°, 2.8 hr., or approximately 0.3 hr. per cu. ft. (very good). In no-load test at 90° with control set to give 43° in storage compartment, average air temperature in freezer space with baffle closed, 12.5° (reasonably close to the 10° figure which is desirable); with baffle open, 21°. Percent running time, 31.1 with baffle open, 39.8 with baffle closed (both satisfac-

tory). Cost of operation per month, \$1.35 (14.5c per cu. ft.) with baffle open (about average); \$1.60 (16.8c per cu. ft.) with baffle closed (above average). Time required to freeze 5.25 lb. of ice cubes, 3.3 hr. (0.63 hr. per lb.), about average. Maximum temperature of ice cream during defrosting, 21°. (Ice cream was normal in color, texture, and appearance, and there were no signs of melting.) Some sweating of cabinet at 89° room temperature and 85% relative humidity (considerable sweating at 88°, 88%).

Combination Refrigerator-Freezer

A. Recommended

Kelvinator, Model MTC (Nash-Kelvinator Corp.)

\$530.

Dimensions:

65 in. high, 31¼ in. wide, 29 in. deep. Total rated capacity, 12 cu. ft. (actual, 11.9 cu. ft.). Frozen food storage, 1.9 cu. ft.

Description:

A two-door combination refrigerator-freezer with two refrigerant-circulating systems separately controlled for temperature. The freezer compartment is completely insulated from the general storage space. Three ice-cube trays (total 5¼ lb., 42 cubes). Does not have automatic defrost.

Performance in Test:

Time to lower temperature from 110° to 46° in food chamber, 2.63 hr., or approximately 0.22 hr. per cu. ft. (very good). In no-load test at 90° with control set to give 43° in storage section and freezer control set at "colder" position, average air temperature in freezer space was 4.5° (considered satisfactory). Percent running time, 41.2. Cost of operation per month, \$2.40 (approximately 20c per cu. ft.), about normal for a combination refrigerator-freezer. Time required to freeze 5.25 lb. of ice cubes, 2.5 hr. (0.48 hr. per lb.), better than average. Some sweating of cabinet at 89° room temperature and 81% relative humidity (considerable sweating at 85% relative humidity).

* * *

The following are abbreviated listings of makes and models in articles in the October, November, and December 1952, and July 1953 CONSUMERS' RESEARCH BULLETINS.

A. Recommended

M. W. Supreme, Model 69A971R (Montgomery Ward & Co.) \$265. Capacity, 9.2 cu. ft. (manufacturer's rating, 8.9 cu. ft.). 1

Coldspot Thermo-matic, Model F9T-C (Sears, Roebuck & Co.) \$320 in retail stores. Capacity, 9.4 cu. ft. (manufacturer's rating, 9.1 cu. ft.). 2

Crosley, Model SD-95 (Crosley Div., Avco Mfg. Corp.) \$300. Capacity, 9.4 cu. ft. (manufacturer's rating, 9.5 cu. ft.). 2

Kelvinator, Model MA (Nash-Kelvinator Corp.) \$430. Capacity, 10.9 cu. ft. (manufacturer's rating, 11 cu. ft.). **2**

Crosley, Model CAD 105 (Crosley Div., Avco Mfg. Corp.) \$440. Capacity, 9.7 cu. ft. (manufacturer's rating, 10.5 cu. ft.). **3**

Frigidaire Cyclamatic, Model IR-90 (Frigidaire Div., General Motors Corp., Dayton 1, Ohio) \$400. Capacity, 9.1 cu. ft. (manufacturer's rating, 9.0 cu. ft.). **3**

General Electric, Model LF8JS1 (General Electric Co., Bridgeport 2, Conn.) \$357. Capacity, 7.7 cu. ft. (manufacturer's rating, 8.7 cu. ft.). **3**

Kelvinator, Model EA (Nash-Kelvinator Corp.) \$340. Capacity, 7.7 cu. ft. (manufacturer's rating, 8 cu. ft.). **3**

Westinghouse Frost-Free, Model DFD-84 (Westinghouse Electric Corp., Mansfield, Ohio) \$400. Capacity, 8.3 cu. ft. (manufacturer's rating, 8.4 cu. ft.). **3**

B. Intermediate

Admiral, Model 982 A (Admiral Corp., Chicago) \$340. Capacity, 8.9 cu. ft. (manufacturer's rating, 9.4 cu. ft.). **2**

Crosley, Model T-CAD-12 (Crosley Div., Avco Mfg. Corp.) \$520. Capacity, 11.6 cu. ft. (manufacturer's rating, 12.1 cu. ft.). **3**

Norge Self-D-Frost, Model DSD-86 (Norge Div., Borg-Warner Corp., Chicago) \$360. Capacity, 7.9 cu. ft. (manufacturer's rating, 8.3 cu. ft.). **3**

Servel, Model 937-C (Servel Inc., Evansville 20, Ind.) \$400. Capacity, 9.1 cu. ft. (manufacturer's rating, same). **3**

C. Not Recommended

Philco, Model 828 (Philco Corp., Philadelphia 34) \$350. Capacity, 8.5 cu. ft. (manufacturer's rating, 8.2 cu. ft.). **2**

Refrigerator-Freezer Combination

C. Not Recommended

Hotpoint, Model EG-87 (Hotpoint Inc., Chicago) \$467. Capacity, 8.5 cu. ft. (manufacturer's rating, 8.7 cu. ft.). Failed proof-voltage test; otherwise would have been rated A. *Recommended.* **3**

Danger in Use of Chlordane

A RECENT NUMBER of the Journal of the American Medical Association reports the case of a 33-year-old woman seriously ill from the results of using a 1 percent or 2 percent solution of chlordane in an insecticide spray gun. This woman slept without ventilation of her apartment and woke with a severe cough and vomiting, which continued unabated until she was admitted to a hospital four days later. The liver was affected. (The situation was perhaps worse in this case because the patient had alcoholic tendencies, and was somewhat obese.) Chlordane is a chemical substance (1,2,4,5,6,7,8,8-octachloro-4,7-methano-3a,4,7,7a-tetrahydroindane) now present in a considerable number of the sprays sold to householders for killing flies, ants, spiders, mosquitoes, and other insects. It is exceedingly poisonous—so poisonous indeed that a government investigator was unable to maintain pigeons in a small room treated with chlordane, even after a thorough scrubbing with strong alkali and subsequent airing for several weeks; this finding indicates that chlordane is not only a substance of high toxicity but one whose properties and dangers are not fully under-

stood and cannot be guarded against with any certainty.

We advise the greatest care by everyone in the use of insect sprays. Particularly, we recommend that no sprays containing chlordane be used in the home (despite a recent recommendation of spraying with it in U.S. Dept. of Agriculture releases). Some persons may be quite unaffected by such applications, or at least think they are. On the other hand, there may be some who will be seriously incommoded. In at least some cases, there is the possibility of grave poisoning. This is especially likely to be a problem where there is illness or there are young children or aged persons in the home, or where the spray or powder has been used in a bedroom or other room used at times or regularly for sleeping. In conclusion, we suggest that our readers should not take for granted that something is harmless because it is widely sold in stores; neither should they buy any insecticide without reading the label carefully. Fortunately, this is one product which when shipped in interstate commerce must bear a label which discloses the toxic constituents by name.

Ball-Point Pens

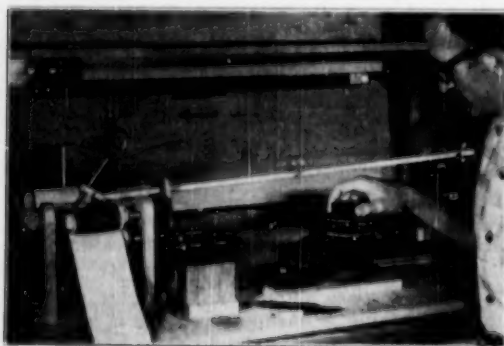
IN earlier BULLETINS, beginning in 1946, Consumers' Research brought to public notice a basic weakness of ball-point pens. The BULLETIN reported that the special ink used in such pens was decidedly "fugitive" (a term used to describe the quick fading of writing exposed to light). Such fading was so marked that, in some cases, a matter of four or five hours of sunlight exposure caused a notable decrease in the darkness of the color and legibility of the writing.

Our readers will have gained the impression that we have a fairly low opinion of ball pens; however, there is no doubt of their importance to consumers in view of the fact that they are in very wide sale (about 60 percent more ball pens are sold than conventional fountain pens). Consumers' Research therefore continues to test them. The popularity of this writing instrument undoubtedly reflects extensive advertising, the fact that they are cheap in the first cost (although not in the amount of writing which they provide), and their great convenience for some purposes. To a large extent, the heavy sale of ball pens is due to the lack of sound economic sense on the part of manufacturers of the conventional fountain pens, who in the main greatly overprice

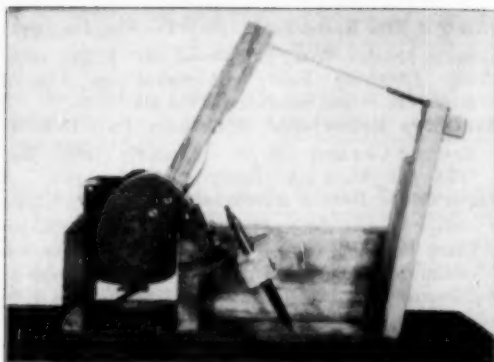
their products, considering what is provided in the way of labor and materials. (Variety chain stores are now getting \$1 or so for fountain pens of a grade which before World War II sold at about 20 to 25 cents, and only a fraction of the higher price reflects extra costs due to the reduced purchasing power of the dollar.) Ball pens are sold heavily in drugstores, newsstands, stationery stores, and variety stores; department stores particularly, where the craze started with pens priced at \$12.50 and up, still do a huge business in them. Nowadays fairly good ball pens can be gotten for about 30 cents.

Although the writing qualities of the inks used in some of the ball-point pens tested in the last year or two have been greatly improved, a substantial proportion of the pens is still very poor in resistance to fading. All the ball pens give writing that is inferior in legibility to writing done with good fountain pen ink in a conventional fountain pen. Consumers' Research cannot emphasize too strongly the serious drawbacks from a legal standpoint in the use of ball pens. Since the ball point lacks flexibility, its writing lacks the shading that makes a contribution to the individuality of writing and ease of reading. Then too, because of the want of flexibility, the ball pen is likely to be more tiring to the hand than an ordinary fountain pen. A ball pen greatly reduces the *characteristic* qualities of a person's writing; its use tends to facilitate forgery and to raise uncertainties—often very costly—regarding the validity of signatures, e.g., on checks, deeds, or wills. Some business and government agencies have wisely prohibited the use of ball pens for signing official and important papers, birth and death certificates, and the like.

Perhaps the most important advantage of the ball-point pen that has put it into wide use is that when not in use it will stay in writing condition for a much longer period than a pen using fountain pen ink. The ink in a fountain pen not used fairly regularly dries up and clogs the feed so that the pen may be almost useless unless given more careful cleaning than the average



Pen tester built by CR to determine the amount of writing provided by the ink cartridge of a ball-point pen. The pen is made to write continuously until the ink in the cartridge is exhausted (one complete stroke—forward and back—corresponds to a writing line of about 5 1/2 inches).



This device was used to test the lasting qualities of the retracting mechanisms of ball-point pens, such as the Universal Klip-O-Matic shown above, in which the points are pushed out by finger pressure on a push button and retracted by pressure on the clip. A simple modification of the machine permitted it to wear-test the kind of ball pen (e.g., Paper-Mate) of which the point is propelled and retracted by successive finger pressures on a push button.

consumer wishes to be bothered with, whereas ball pens will very often stay in writing condition for years. Unlike an ordinary fountain pen, a ball pen may need no particular care or attention until the cartridge is empty and a new one must be inserted. Ball pens will write a great many more words per filling than a conventional fountain pen, and that is another feature which has made them popular. *Sheaffer's Fineline* (which afforded the greatest amount of writing from a single ink chamber or filler, of pens tested) produced about 20 times as much writing per filling as a fountain pen of average capacity. The cost of writing with the *Fineline* would be about 10 times as great as writing with fountain pen ink. (In the average ball pen, the cost would be about 30 to 40 times as much as with a fountain pen.) A ball pen will usually, although not always, write at once on contact with a writing surface; a fountain pen that has been out of use for some time will not; the ball pen is very handy to carry for occasional or instant use (for example, to jot down a brief note or record in an expense account or automobile record book); the writing will not become illegible if the paper gets wet; it will make a considerable number of good carbon copies; the writing does not require blotting, although with some pens there will be a transfer of ink to other papers which come into contact with it, or to the fingers.

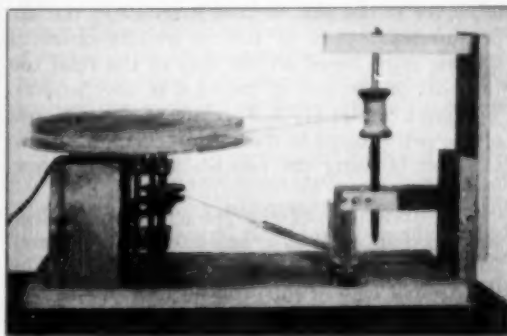
The problem of smearing of fingers with ball-pen ink has been so serious—the ink often so difficult to remove from clothing to which it

may be transferred, even by dry cleaning, and from the fingers—that there has been a great vogue in recent months for ball pens having a retractable-point mechanism. This eliminates the cap to protect the point, and greatly reduces the likelihood of smearing the fingers and clothing with ink.

Some ball-point pens sold at widely different prices have been fairly satisfactory, and on that account consumers have often been inclined to buy them without much consideration of make. However, one should avoid purchase of a ball pen of unknown make, or any brand which is not sold regularly in the stores; it will often happen that refills for such pens will not be available. Thus when the ink chamber is empty, the pen must be discarded and a new one bought. Refills are very cheap to make, and the retailer or manufacturer of a well-known or reputable make of ball pen often will replace without charge one which fails to write.

Tests by CR

In addition to CR's usual testing of ball-pen inks for resistance of ink to fading by exposure to light and determining the amount of writing provided by the different ink cartridges, CR has built mechanical devices for testing the lasting qualities of the retracting mechanisms of ball pens. The pens included in this report all had retractable points except the *Eversharp Star Reporter*, *Sheaffer's Fineline*, and *Waterman's Ball Pointer*. Two machines were designed and built: one for testing the pens whose points are propelled by pushing on a button at the top of the pen, and another for the type of retracting mechanism which works by turning a knurled



This machine was devised to subject the retracting mechanism of the *Scripto* pen to an endurance test. In this type of pen, the point is moved into writing position by turning the knob of the pen clockwise, and retracted by an opposite turning motion.

knob at the top of the pen. The pens on which the point was propelled and retracted for over 5000 cycles of operation without failure were considered to have good durability.

Samples of the writing of each ball pen or refill cartridge were exposed to fading in a Fade-Ometer (a laboratory unit using an arc lamp for producing accelerated fading of dyes, etc.), and to sunlight in a southwest window for comparative purposes. For inks, one hour of exposure in the Fade-Ometer is equivalent to about two to two and one-half hours of summer sun in Washington, D.C. The pens listed in the *A-Recommended* group met the requirements for resistance to light in a Fade-Ometer as outlined in Federal Specifications TT-I-562. The requirements of these specifications are very lenient, since they require only that the writing remain legible after 48 hours of exposure, whereas a first-class ink of the type used in fountain pens would not lose legibility at all in that time; by comparison it would be practically permanent in its resistance to exposure to light.

The amount of writing provided by a ball pen was determined by the operation of the pen continuously in a mechanical device by which it wrote lines back and forth on a continuously moving strip of paper until the ink in the cartridge was exhausted. As one might expect, there is considerable variation in the amount of writing obtained from cartridge to cartridge of the same make, and a very wide range in length of line written by cartridges of different makes. One *Scripto* pen provided 1700 feet of writing, whereas *Waterman's Sapphire Jewel-Point* gave 7700 feet, and *Sheaffer's Fineline* 18,400 feet.

The first figure in parentheses following price in the listings gives the number of feet of writing provided by the ink cartridge; the second figure in the parentheses is a measure of the economy of the pen, in that it indicates the approximate number of feet of writing obtained for one cent, based on the cost of the refill (on the cost of the pen in the case of the *Scripto*). The price ratings (1, 2, 3) relate to the cost, not of the pen (except in the case of *Scripto*), but to the cost of using the pen when refills are purchased.

The durability of the retracting mechanism was good in each case unless otherwise noted. All of the retracting mechanisms except that on the *Scripto* were of the push-button type.

A. Recommended

Found good in resistance to fading of writing by exposure to light. (Inks blue to dark blue, except *Eversharp* and *Paper-Mate*.)

B-B Rol-Rite Retractable (B-B Pen Co., Inc., 6245 Santa Monica Blvd., Hollywood 28) \$1.29; refill, 49c. (2900/60) Fairly well-finished pen. One of three best in fade resistance of the ink. 3

Eversharp Retractable (Eversharp, Inc., 1800 W. Roscoe, Chicago) \$1.29; Kimberly refill, 50c. (4200/85) Black ink. Fairly well-finished pen. 3

Paper-Mate Deluxe Retractable (Frawley Corp., Culver City, Calif.) \$1.69; refill, 49c. (2500/50) Black ink. Fairly well-finished pen. Push-button mechanism, which was the easiest of the group to operate, stuck occasionally after operation of 1250 cycles in wear test. The *Paper-Mate*, one of the first retractable ball pens to be widely advertised and marketed, is convenient in use compared with some other makes, the black-ink cartridge was among the lowest in number of feet of writing, for 1 cent, of makes tested. 3

Scripto Retractable (Scripto, Inc., P.O. Box 4847, Atlanta 2) 29c. (1700/60) Simple and inexpensive construction, similar in appearance to some cheap mechanical pencils. Very light in weight—about $\frac{1}{3}$ as heavy as *Waterman's Flair* and *Sapphire*. One of three best in fade resistance. Retracting mechanism, not as convenient as the push button, since one would ordinarily use two hands on the *Scripto*, one to hold the pen, one to turn the knob. Only pen in test in which ink cartridge was not replaceable. Among the lowest in number of feet of writing from a single ink chamber, of pens tested. 3

Stratford Retractable (Stratford Pen Corp., 44 W. 28, New York 1) \$1; refill, 39c. (2900/75) Finish of gilt band and clip showed marked deterioration. One of three best in fade resistance. 3

Waterman's Flair Retractable (L. E. Waterman Co., 344 Hudson, New York 13) \$1.95; refill, 50c. (3700/75) Attractive, slim, well-finished pen, but somewhat heavy. 3

Waterman's Sapphire Jewel-Point Retractable (L. E. Waterman Co.) \$6; refill, \$1. (7700/75) Attractive, slim, well-finished pen, but somewhat heavy. The sapphire point would appear to be more a sales point than one of importance to the consumer; the writing was not considered significantly better than that of other much cheaper ball pens. Operation of point propelling and retracting mechanism was stiffer than that of other ball pens, and some might find that undesirable. Mechanism stuck occasionally after 1600 cycles of operation. 3

* * *

Writing of the following (blue to dark blue inks) was somewhat less fade resistant than that of the preceding pens.

Eversharp Star Reporter (Eversharp, Inc.) 98c; Kimberly refill, 50c. (4700/95) Fairly well-finished pen, with slip-on cap. 3

Flo-Ball Retractable (Flo-Ball Pen Corp., 16 E. 40, New York 16) \$2; refill, 50c. (3900/80) Attractive, well-finished pen. 3

Paper-Mate Deluxe Retractable (Frawley Corp.) Refill cartridge, 49c. (4300/85) 3

B. Intermediate

The following (violet inks, except in *Scripto*) were relatively poor in resistance to fading of writing by exposure to light.

Sheaffer's Finesline (W. A. Sheaffer Pen Co., Finesline Division, Ft. Madison, Iowa) \$1.65; refill, 50c. (18,400/365) Fairly well-finished pen, with screw-on cap. Provided by far the greatest number of feet of writing from a single cartridge, and for 1 cent, of pens tested. **1**

Weaver PresClick Retractable (David Kahn, Inc., North Bergen, N.J.) 98c; refill, 25c. (6000/240) Fairly well-finished pen. Retracting mechanism

stuck occasionally after operation of 2000 cycles in wear test; a second sample failed in use, in less than a month. **1**

Waterman's Ball Pointer (L. E. Waterman Co.) \$1; refill, 50c. (6800/135) Fairly well-finished pen, with slip-on cap. **2**

Scripto Retractable (Scripto, Inc.) 29c. (2800/95) Red ink. Very poor in fade resistance, whereas *Scripto* with blue ink (listed in *A. Recommended* group) had good resistance to fading. **3**

Universal Klip-O-Matic Retractable (Universal Fountain Pen & Pencil Co., Inc., 146-150 W. 26, New York 1) \$1; refill, 50c. (3600/70) Fairly well-finished pen. Push-button retracting mechanism failed after 3200 cycles in wear test. **3**

Off the Editor's Chest

(Continued from page 2)

on the surfaces of fine furniture. The trial and error method obviously has its drawbacks and can be costly; often it is wholly unsuitable for determining the merit or safety of the product.

Potential hazards to health from certain chemicals should not be minimized. A year or two ago there was a case reported of the death of a woman who happened to use an acid toilet bowl cleaner together with a household bleach (sodium hypochlorite) so that sufficient chlorine gas was released to cause suffocation. Admittedly, this was an exceptional case, but the preparations for such purposes should carry a warning label and should be used with caution in any case. Carbon tetrachloride, trichlorethylene, and other chlorinated solvents, much used in the home as cleaning solvents, in rug cleaners and the like, are poisonous by inhalation, in spite of their not unpleasant odor.

Silver cleaners that contain sodium or potassium cyanide have no place in any household because both are dangerous poisons, and the danger they present is particularly great where there are children in the home. Cyanide can be absorbed through a cut in the skin or traces may be left on eating utensils.

More effective, and considerably safer, are the paste polishes that contain an abrasive, or use of the electrolytic cleaning method. Tarnish may be easily and quickly removed when the silver is placed in contact with aluminum, zinc, or tin in a solution of baking soda, trisodium phosphate, or salt in hot water. It should be noted that this method of cleaning leaves silver

with a somewhat dull finish, and polishing from time to time with an abrasive will be required if a fine luster is desired. As reported in *CR BULLETIN*, July 1953, a convenient way to keep silver in everyday use free of tarnish is to place a leaf of magnesium alloy, called *Magic Leaf*, in the dishpan each time the silver is washed, using a powdered synthetic detergent. The polishing cloths that contain a fine abrasive will remove tarnish but in time the accumulated tarnish and soil renders them ineffective, and some of these cloths may besides be too abrasive.

The new oven cleaners such as *Easy-Aid* and *Easy-Off*, tested by CR, were found to be effective in use, but since they contain caustic soda they should be stored where children cannot reach them. Because they are strongly alkaline it is advisable to wear rubber gloves to protect one's hands, and care should be taken to avoid getting the material on the clothing, or on linoleum or other floor covering.

It is advisable to remember that in addition to hazards already mentioned, a number of household cleaning solvents, polishes, etc., are highly flammable and should not be used around any open flame such as that of a gas or oil burner or a gas stove in the kitchen, or a lighted cigarette. Although many of the new household chemical products lighten the kitchen chores, they also may involve side-effects that are unpleasant or hazardous but avoidable by proper and careful use—a general attitude of caution that is always warranted where new and unfamiliar substances are involved.

It's Often Wise

To Check up on a Company before You Buy

WE have received so many letters asking about whether readers should buy a product (silverplated ware or an electric appliance, for instance) from a given small or little-known company or a small or unknown mail-order concern that we feel it necessary to repeat an important suggestion made in CR's BULLETIN of June 1950. Evidently too few consumers realize that there are practical means of finding out something about the financial standing and other elements affecting the responsibility of companies or dealers with which they might want to do business; yet such information may very often be vitally important, particularly when a purchase by mail is under consideration.

Wherever there is a substantial sum involved in a purchase from a distance, the consumer should consider checking carefully the financial position and standing of the company. Consumers' Research often advises a subscriber to obtain a report or commercial reference on the firm from his bank, in any case where reliability or commercial responsibility of a business or its management may reasonably be questioned. Banks will usually provide a report for a regular customer (and one whose discretion can be trusted), either free, or for a small fee, often a dollar or two (up to \$5 or even \$10 in some cases), and often much less than the money that would otherwise be risked in the purchase. It must be understood that banks may show a natural reluctance to furnish this type of information except to responsible business concerns, because of the danger that it will be misused or misrepresented, and so subject the bank or its officers to embarrassing objections (or possibly a suit at law) on the part of the business inquired about. (Banks will not furnish this service for a small item or expenditure, but only where a substantial outlay is involved, such as the painting of a home, or installation of a heating system; on a small item, the bank would not be warranted in going to the expense and trouble involved,

and the consumer must often accept the risk involved and rely upon his own knowledge and judgment alone.)

Many firms of a fly-by-night or questionable character choose names which sound impressive. Often they will include such words as "U.S.," "Universal," "General," "Federal," "International," or some other adjective which seems to give them size and status. In any case of doubt, the company's name should be looked up at your public library or bank in such reference books as Poor's, a corporation directory, or Thomas' Register of American Manufacturers. These books, particularly Thomas', include thousands of names, and if a company is missing from one or both of them, it is fairly safe, as a rule, to assume that it is not a business firm of great importance or standing. Most of these business directories are expensive and likely to be found only in fairly large libraries or in banks.

There are in addition to the national directories, various directories of manufacturers within the several states. The following are named merely as examples of various books in this category: New Jersey Industrial Directory (\$20); Directory of Illinois Manufacturers (\$20); Arizona Business and Professional Directory (\$45).

Among the national directories are: Thomas' Register of American Manufacturers; MacRae's; Conover-Mast. There are besides specialized directories for particular industries, such as Davison, for textiles; Lockwood, for paper; Modern Plastics Encyclopedia, for plastics.

There are many enterprises which may warrant careful checking before any purchase in a substantial amount is made. Particularly questionable are bargain or surplus items often advertised in big-city newspapers, particularly in Sunday editions, and many of the items advertised in certain of the popular mechanical or experimenter magazines much read by hobbyists and young enthusiasts for automobiles and mechanical, electrical, and electronic gadgets.

The advertising departments both of the newspapers and magazines commonly are not as active as they should be in questioning the accuracy and dependability of the claims made for much of the advertising they print. Typical of the kinds of mail-order offers that may warrant investigation before any substantial amount of money is risked are firms selling the following:

portable lighting and pumping outfits and other electric lighting and heating equipment and wiring accessories; bargain-price oil burners

electric lamps for which special or unusual qualities are claimed, such as insect exterminating or repellent lights

motors, pumps, compressors for hobbyists (of unstated horsepower or capacity)

"high-powered" telescopes, binoculars, and microscopes (in the \$2 to \$5 bracket)

night-driving glasses

watches, low-priced, reconditioned, "chronographs," etc.

fire extinguishers (particularly those of exceptionally small size, or sold at unusually low prices)

"substandard" or low-priced welders for home or shop use

substandard calculating and adding devices, pocket adding machines

slide rules

chemical substances for restoring "dead" storage batteries, or "overhauling" your auto engine in 10 minutes

home training courses for TV servicing

gadgets, appliances, "pills" or "dopes" asserted to improve the safety of driving, gasoline mileage, or performance of an automobile, and particularly, of late, various "dopes" or "additives" to be added to the lubricating oil to achieve, allegedly, various improvements in performance, smoothness of operation, etc.

formulas for home manufacture of chemical specialties, plastics, etc.

air compressors

soil conditioners

paint sprayers

trees and shrubs

"giant" balloons

vitamin and mineral preparations

flashlights operating without batteries

mail-order paints, enamels, and varnishes

special varnishes or other coatings for linoleum

automobile engine heaters for cold-weather starting

patent lawyers who advertise special deals or bargain rates

The consumer should bear in mind that the expenditure of a small amount of time and money on a "bank report" may pay big dividends. A single sentence in the report received may indicate quite clearly that it would be unwise to risk any money with the firm in question under any

circumstances where the product could not be seen and examined or evaluated in some effective way before payment is made and delivery accepted. For instance, when a bank report on a firm states that it has maintained a bank balance in low 3-figure amounts, or that it would give no information on financial details, it is clear that it would hardly be desirable to enter into a transaction with it if there is any likelihood at all that the purchaser would later need to seek redress in case of a defective, low-grade, short-lived, inefficient, or hazardous product.

After the money has been sent to an undesirable or irresponsible firm, it is usually too late to take effective action; ordinarily it is hopeless to seek recovery at all, since lawyers' fees and court costs are likely to be equal to or greater than the loss in the purchase of a useless or potentially harmful article. Businessmen who are exploiting shady or worthless products (and there are many such advertisers, and new ones going into business constantly) will often be shown by a bank report to have been in a similar and short-lived type of activity previously.

Note that the kind of information to be sought is not that which is ordinarily given when one writes to a bank for a *reference* on a firm. Small business concerns selling questionable products or services often refer to various banking connections in their city as proof of the company's reliability and good performance. Answers to such inquiries may say that "the firm has been a satisfactory customer of ours for many years," or that "the firm is reputable and responsible," or their "business relations have been pleasant and satisfactory." Such information is of no particular value, may in fact be misleading. *It is not the relationship of the company to the bank which is important*, for many snide firms and racketeers may have substantial bank accounts and get along well with their bankers; the things that count are the standing of the company in the business community, who are its principals, what businesses they have been in previously, the size and responsibility of their operations (promptness of payment of obligations, etc.), and items of similar import. The general size of their bank balance is of interest, especially if it is very small for the nature of the business, or sharp fluctuations are indicated.

It is not safe to suppose that, because the advertising appeared in a big or important newspaper or magazine, or was offered on the radio or television, the company presenting the advertising will be responsible or keep all its promises to those who buy the product. If newspapers and magazines and other advertising media would

and could competently and carefully precensor all advertising, the problems of the Better Business Bureaus would be much decreased, and CR would have fewer fraudulent or questionable items to report on, such as those typified by "silver polishes" containing cyanides, waterproof coatings for cellar walls that do not stop percolation of moisture as claimed, low-grade "binoculars" which are actually substandard opera glasses, soil conditioners and fertilizers effortlessly applied that are supposed to make practically unnecessary any unpleasant work with the garden soil after the "miracle product" has been sprinkled on and the seeds planted.

In a city of substantial size, where a Better Business Bureau operates, such a Bureau will often be the best source of reliable information on companies whose integrity might be questioned. The Bureaus neither recommend nor endorse a company or its product; they restrict themselves to giving *fact* information, and the consumer must decide for himself whether or not to purchase a product or service. The Better Business Bureaus not only handle inquiries, but get out convenient booklets which furnish general information to help consumers avoid gyms and frauds and to purchase wisely; for example, in connection with funerals and interments, life insurance, furs, health cures, bait-advertising, money-making schemes, fake investment companies, and stock promoters. Better Business Bureaus cannot investigate everything, but they do try to look into things that appear to be questionable, and they take up important consumer complaints which they deem to be justified. They can tell the inquirer, for example, that a certain company has been in business for 30 years with an annual volume of sales of so many million dollars, and that the firm has never

been the subject of complaint to the Bureau, and that there is no derogatory information about the firm in their files. If there have been complaints for wrong-doing of a definite nature, they will say so. They cannot, of course, guarantee that each and every transaction of a given company will be correctly and fairly handled. No one can possibly provide such assurances.

There are Better Business Bureaus at the present time in 89 cities of the United States, and seven in Canada and one in Hawaii. The local Bureaus are autonomous, individual, non-profit corporations formed by local businessmen who have a desire to keep shady business and unfair selling-schemes from operating in their communities.

The consumer can do a great deal to bring about correction of unsatisfactory conditions in advertising through which he suffers loss in various ways. Particularly he can write a letter of complaint to the medium through which the advertising reached him, whenever he is cheated or dissatisfied on reasonable grounds. Newspapers and magazines and other media need to be encouraged in their wish to refuse questionable copy, and it is strongly suggested that a consumer who has been cheated should allow no case to pass by without registering his protest where the advertising medium was at fault or could have done a better job of censoring copy or ruling out a questionable advertiser. Newspapers and magazines, radio and television station owners are sensitive to these matters but they do not receive nearly as many protests from consumers as the circumstances warrant. When more complaints are made, fewer objectionable advertisements will be printed, and fewer shady and "fringe" businesses will be able to carry on their questionable operations.

Corrections and Emendations to Consumers' Research Monthly Bulletins

Loud-Speakers
Page 21
April '53 Bulletin
The *University 6201 Coaxial* loud-speaker was incorrectly stated to be the only true 12-in. coaxial speaker known to be manufactured. Although it was the only true coaxial which CR has tested, there are other speakers available, such as the *Jensen H-222* and the *Altec-Lansing 601A*,

which do incorporate the desirable concentric-magnet construction.

Automobiles
Studebaker
Champion
Page 21
July '53 Bulletin

The price of the automatic transmission should be \$231, not \$105 as stated.

Ratings of Motion Pictures

THIS section aims to give critical consumers a digest of opinion from a wide range of motion picture reviews, including the motion picture trade press, leading newspapers and magazines—some 19 different periodicals in all. The motion picture ratings which follow thus do not represent the judgment of a single person, but are based on an analysis of critics' reviews.

The sources of the reviews are:

Box Office, Cue, Daily News (N.Y.), The Exhibitor, The Farm Journal, Harrison's Reports, Joint Estimates of Current Motion Pictures, Motion Picture Herald, National Legion of Decency, Newsweek, New York Herald Tribune, New York Times, New York World-Telegram & Sun, Parents' Magazine, Release of the D.A.R., Preview Committee, Reviews and Ratings by the Protestant Motion Picture Council, Time, Variety (weekly), Weekly Guide to Selected Motion Pictures (National Board of Review of Motion Pictures, Inc.).

The figures preceding the title of the picture indicate the number of critics who have been judged to rate the film A (recommended), B (intermediate), or C (not recommended) on its entertainment values.

Audience suitability is indicated by "A" for adults, "Y" for young people (14-18), and "C" for children, at the end of each line.

Descriptive abbreviations are as follows:

adv—adventure
biog—biography
c—in color (Technicolor, Cinecolor, Trucolor, Magnacolor, Vitacolor, etc.)
car—cartoon
com—comedy
cri—crime and capture of criminals
doc—documentary
dr—drama
fan—fantasy
hist—founded on historical incident
mel—melodrama
mus—musical
mys—mystery
nov—dramatization of a novel
rom—romance
sci—science fiction
soc—social problem drama
trav—travelogue
war—dealing with the lives of people in wartime
wes—western

A	B	C	
8	3		Abbott and Costello Go to Mars...com A
1	6		Affair with a Stranger...dr A
2	2		Affairs of Dobie Gillis, The...mus-com A
1	3	1	Alaskan Eskimo, The...doc-c AY
3	3	1	All American, The...dr AY
6	6		All Ashore...mus-com-c A
5	4		All I Desire...dr A
3	7		Ambush at Tomahawk Gap...mel-c A
2	8		Arena...wes-c A
1	5	1	Arrowhead...mel-c A
1	7	2	Assassin, The (British)...cri-mel A
1	4		Bad Blonde (British)...cri-mel A
7	5		Band Wagon, The...mus-com-c A
2	7		Bandits of Corsica, The...adv A
8	11		Battle Circus...war-mel A
1	4		Bear Country...doc-c AY
7	7		Beast from 20,000 Fathoms, The...sci AY
1	3		Bellissima (Italian)...dr A
1	7		Below the Sahara...doc-trav-c AY
3	3		Big Break, The...dr A
1	9		Big Frame, The...cri-mel A
4	8		Big Leaguer, The...dr AY
8	8		Blue Gardenia, The...cri-mel A
1	11	4	Bright Road...dr AY
13	3		By the Light of the Silvery Moon...mus-com-c AY
12	5		Call Me Madam...mus-com-c AY
5	3		Charge at Feather River, The...wes-c A

A	B	C	
3	3		Cinderella (Italian)...mus-dr AY
7	7		City Beneath the Sea...mel-c A
5	3		City of Bad Men...wes-c A
4	5		City that Never Sleeps, The...cri-mel A
5	4		Code Two...cri-mel AY
2	6		Column South...mel-c AY
9	2		Confidentially Connie...com AY
7	7		Count the Hours...mel A
3	3		Counterfeiters, The (Italian)...mel A
3	3		Cow Country...wes A
1	2	2	Cruel Sea, The (British)...now AY
2	1		Cruisin' Down the River...mus-com-c AY
6	3		Cry of the Hunted...cri-mel A
4	2		Dangerous Crossing...mys-mel AY
1	12		Dangerous When Wet...mus-com-c A
8	5		Desert Legion...mel-c AY
3	6	6	Desert Rats, The...war-dr AY
9	8		Desert Song, The...mus-com-c AY
2	12	2	Destination Gobi...war-dr-c AY
6	6		Devil's Plot (British)...mel A
7	7		Double Confession (British)...cri-mel A
2	9		Down Among the Sheltering Palms...mus-com-c A
5	5		Dream Wife...com A
1	2		Duel Without Honor (Italian)...dr A
1	3		Egypt by Three (Egyptian)...dr A
5	5		Elizabeth is Queen (British)...doc-c AY
3	5		Fair Wind to Java...adv-c A
8	1		Fanfan the Tulip...adv AY
2	10		Farmer Takes a Wife...mus-com-c A
2	8		Fast Company...com A
5	5		Fear and Desire...war-dr A
1	7	6	5,000 Fingers of Dr. T, The...fan-c A
2	3		Flame of Calcutta...mel-c A
4	4		Forever Female...com A
3	3		Fort Algiers...mys-mel A
2	12		Fort Ti...war-mel-c AY
4	2		Fort Vengeance...mel-c AY
6	3		49th Man, The...mys-mel AY
4	4		Four Sided Triangle, The (British)...sci A
8	1		Francis Covers the Big Town...com AY
4	2		Genghis Khan (Philippines)...mel A
1	5	4	Gentlemen Prefer Blondes...mus-com-c A
3	3		Ghost Ship (British)...mel A
6	5		Girl Next Door, The...mus-com AY
2	5		Girl Who Had Everything, The...dr A
10	3		Girls of Pleasure Island, The...com-c A
6	6		Glass Wall, The...mel A
5	1		Glory at Sea...war-doc AY
9	1		Glory Brigade...war-dr AY
2	6		Gold Town Ghost Riders...mus-wes AY
5	5		Great Sioux Uprising, The...mel-c AY
1	7		Guerrilla Girl...mel A
5	5		Gun Belt...wes-c AY
1	6	4	Gunsmoke...wes-c AY
1	3		Hannah Lee...wes-c A
1	2		Hell Is Sold Out (British)...dr A
2	6		Hoaxters, The...propaganda-doc AY
1	4		Homesteaders, The...wes-c AY
10	2		Houdini...biog-c AY
1	9	4	House of Wax, The...cri-mel-c A
7	1		Hundred Hour Hunt (British)...cri-mel A
1	2		I, the Jury...cri-mel A
4	11	2	I Believe in You (British)...mel A
2	8	6	I Confess...mys-mel A
13	3		I Love Melvin...mus-com-c AY
2	3		I'll Get You (British)...mys-mel AY

A	B	C		A	B	C	
5	12	1	Importance of Being Earnest, The (British).....com-c A	—	2	4	Ramuntcho (French).....dr A
—	1	2	Inferno.....mel A	—	3	3	Rebel City.....wes AYC
—	5	9	Invaders from Mars.....sci-c AY	—	6	3	Remains to be Seen.....mus-mel A
—	5	3	Iron Mountain Trail.....wes AYC	2	3	1	Return to Paradise.....dr-c A
—	8	4	It Came from Outer Space.....sci AYC	—	4	8	Ride, Vaquero.....wes-c A
1	6	1	It Happens Every Thursday.....com A	—	8	4	Ring Around the Clock (Italian).....dr A
—	5	5	Jack McCall, Desperado.....wes-c A	—	4	2	Roar of the Crowd.....mel-c AYC
—	4	2	Jalopy.....com AYC	4	1	—	Roman Holiday.....com A
—	4	6	Jamaica Run.....adv-c A	2	4	5	Rome, 11 O'Clock (Italian).....dr A
—	11	5	Jeopardy.....mel A	—	4	1	Safari Drums.....mel AYC
1	2	1	Johnny, the Giant Killer (French).....car-c AYC	2	5	8	Salome.....dr-c A
2	11	5	Juggler, The.....dr AY	—	3	6	San Antonio.....wes A
13	3	—	Julius Caesar (MGM production).....dr AYC	—	8	8	Sangaree.....mel-c A
—	—	3	Jungle Girl.....adv AYC	—	1	7	Savage Frontier.....wes AYC
—	10	2	Justice Is Done (French).....cri-dr A	1	8	5	Scandal at Scourie.....dr-c A
—	5	1	Kansas Pacific.....mel-c AYC	1	9	7	Scared Stiff.....com AYC
—	5	5	Keepers of the Night (German).....dr A	3	10	1	Sea Around Us, The.....doc-c AYC
—	4	—	Kid from Left Field, The.....com AYC	—	2	7	Sea Devils.....adv-c A
—	7	5	Lady Wants Mink, The.....com-c AYC	—	10	1	Second Chance.....mel-c A
—	2	4	Landfall (British).....war-dr A	—	2	1	Secret Conclave, The (Italian).....biog AY
—	7	2	Last Posse, The.....wes A	1	6	5	Seminole.....m-l-c A
—	2	1	Latin Lovers.....mus-com-c A	—	2	9	Serpent of the Nile.....adv-c A
—	7	2	Law and Order.....wes-c A	2	7	3	Seven Deadly Sins, The (French).....dr A
—	7	4	Let's Do It Again.....mus-com-c A	—	1	4	Sextette (French).....dr A
5	9	1	Lili.....mus-com-c AYC	13	4	—	Shane.....wes-c AY
1	3	1	Little Boy Lost.....mus-dr AYC	—	11	5	She's Back on Broadway.....mus-com-c AY
1	7	3	Lone Hand, The.....wes-c AYC	—	3	4	Shoot First.....mys-mel AYC
—	5	—	Long Memory, The (British).....cri-mel A	2	6	1	Silver Whip, The.....wes AYC
—	1	3	Loose in London.....com AYC	—	3	—	Singing Taxi Driver (Italian).....mus-dr A
—	1	2	Love Island.....adv-c A	—	5	4	Siren of Bagdad.....mel-c AY
—	10	—	Luxury Girls (Italian).....dr A	—	1	2	Slaves of Babylon.....hist-c AY
—	6	4	Ma and Pa Kettle on Vacation.....com AYC	—	3	4	Slight Case of Larceny, A.....com A
1	11	4	Magnetic Monster, The.....sci AYC	1	8	5	Small Town Girl.....mus-com-c AYC
1	7	3	Mahatma Gandhi—20th Century Prophet.....doc-biog AY	1	3	—	So this is Love.....mus-biog-c AYC
—	5	1	Man from the Alamo, The.....wes-c AYC	—	11	11	Sombrero.....mus-dr-c A
—	7	10	Man in the Dark.....mel A	—	4	1	Son of Belle Starr.....wes-c A
10	7	1	Man on a Tightrope.....dr A	—	8	—	Son of the Renegade.....wes AYC
—	3	4	Marika (Viennese).....mus-com A	—	5	7	South Sea Woman.....war-mel A
—	2	1	Marksmen, The.....wes AYC	—	2	3	Spaceways (British).....sci A
—	4	3	Marshal of Cedar Rock.....wes AYC	16	2	—	Split Second.....mys-mel A
—	6	—	Marshal's Daughter, The.....mus-wes AYC	8	9	—	Stalag 17.....war-com A
2	3	—	Martin Luther.....doc-biog A	—	9	4	Stars are Singing, The.....mus-com-c AYC
—	3	2	Maze, The.....mys-mel A	—	3	—	Stolen Identity (Austrian).....cri-mel A
2	6	5	Melba.....mus-biog-c AYC	2	12	4	Story of Three Loves, The.....dr-c A
—	2	3	Miss Robin Hood (British).....com A	1	7	1	Strange Deception.....war-dr A
—	1	6	Monsoon.....dr-c A	—	3	6	Sun Shines Bright, The.....dr A
—	10	4	Moon Is Blue, The.....com A	—	5	1	Sword and the Rose, The.....nov-c A
—	6	3	Murder Will Out (British).....mys-mel A	—	1	8	Sword of Venus.....adv A
—	3	4	Murder Without Tears.....cri-mel A	—	7	7	System, The.....cri-mel A
—	5	2	Naghty Martine.....com A	6	4	—	Take Me to Town.....mus-dr-c A
1	9	5	Never Let Me Go.....mel A	—	7	7	Tall Texan, The.....wes A
—	2	5	Night Without Stars (British).....dr A	—	6	—	Tangler Incident.....mys-mel AYC
—	2	2	No Holds Barred.....com A	—	1	3	Tarzan and the She Devil.....mel AYC
—	—	5	Northern Patrol.....mel AYC	—	3	1	Terror on a Train (British).....mys-mel A
—	1	2	Of Love and Bandits (Italian).....mel A	—	1	6	That Man from Tangier.....mel A
1	12	3	Off Limits.....com AYC	—	3	3	Three Dimension.....doc-c AYC
—	3	4	O.K. Nero (Italian).....com A	1	11	4	Thunder Bay.....mel-c AY
—	4	4	Old Overland Trail.....mus-wes AYC	—	1	2	Times Gone By (Italian).....dr A
—	3	3	On Top of Old Smoky.....mus-wes-c AYC	3	11	2	Titanic.....dr A
—	2	8	One Girl's Confession.....mel A	—	8	3	Tonight at 8:30.....dr A
—	1	5	Pack Train.....wes AYC	—	8	3	Treasure of the Golden Condor.....adv-c AYC
—	3	2	Paris Express, The (British).....mys-mel-c A	—	1	5	Triorama.....doc-c AYC
—	12	1	Penny Princess (British).....com-c A	1	13	3	Trouble Along the Way.....com A
—	1	9	Perilous Journey, A.....mel A	—	5	4	Twonky, The.....sci AYC
—	2	4	Phantom from Space.....sci AY	—	5	—	Vanquished, The.....war-dr-c A
1	8	8	Pickup on South Street.....cri-mel A	—	1	12	Vice Squad.....cri-mel A
—	2	3	Pimpinel Svensson (Swedish).....com AYC	2	5	1	Volcano (Italian).....dr A
1	7	3	Pony Express.....wes-c A	—	3	1	War of the Worlds, The.....sci-c AYC
—	9	—	Port Sinister.....mel A	1	3	1	War Paint.....mel-c A
—	5	8	Powder River.....wes-c A	—	3	—	What Price Innocence? (Italian).....dr A
3	8	4	President's Lady, The.....hist-dr A	—	5	3	Wherever She Goes (Australian).....mus-dr AYC
—	2	7	Prince of Pirates.....adv-c A	—	2	3	White Lightning.....dr A
—	9	—	Problem Girls.....soc-dr A	1	8	4	White Witch Doctor.....mel-c AYC
10	3	—	Queen Is Crowned, A (British).....doc-c AYC	—	1	2	Wide Boy (British).....cri-mel A
—	2	7	Raiders of the Seven Seas.....adv-c AYC	—	2	9	Woman They Almost Lynched, The.....mus-mel A
				3	12	4	Young Bess.....hist-dr-c AYC

The Consumers' Observation Post

(Continued from page 4)

CORRECTION, PLEASE: In the discussion of the Federal Trade Commission's action against Garden Research Laboratories, Inc., with respect to advertising claims made for RX-15 (CR Bulletin, July 1953, page 33), it has been called to our attention that the F.T.C. has not issued any finding on the subject. The word "charged" should be substituted for the term "found" in the sixth line of the item. The company is reported to be in negotiation with the F.T.C. in connection with the charges made by the Commission.

* * *

YOUR KEY TO BETTER TEXTILES is a little leaflet that should be read by every homemaker having difficulty washing and ironing rayon and acetate garments, by the laundry director or dry cleaner who may have the same problem, and by store managers who have to deal with complaints of excessive shrinkage, damage from ironing, fading of colors, and damage from water or perspiration. Garments and fabrics made from rayon and acetate or a combination of fibers sometimes carry labels that advise how they should be laundered; sometimes no such information is provided. There is no common terminology that simply and clearly indicates how the garments should be handled for best results. To provide a yardstick for evaluating the performance of rayon and acetate fabrics, there has been developed and adopted an American Standard, officially known as L22, which sets up performance specifications and test methods. Suggested also are three types of hang tags and sewn-in labels for fabrics washable at 160°, washable at hand temperature at 105°, and dry cleanable. If consumers in considerable number will demand such information on the garments they buy, many complaints of unsatisfactory performance will be eliminated. Teachers of textile courses, women's clubs, and just individual consumers who wish more information on the subject should send for the leaflet, available at 10 for \$1 from the American Standards Association, 70 E. 45 St., New York 17.

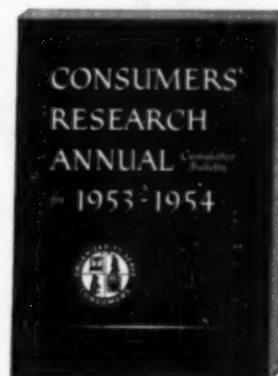
* * *

LEAN PORK IS PREFERRED BY MOST CONSUMERS. It is fairly well established that women want less fat on pork chops, loin of pork, and even bacon. The lard type of hog is no longer the desirable type, and agricultural experts are now reported to be working to teach farmers how to produce "meat type" hogs that are leaner.

It's just off the Press!

The big 220-page Annual Bulletin is now ready for mailing. Folks who were forehanded in placing their orders will, no doubt, soon receive their copies of CR's September 1953 Annual and can then tell their friends what a useful volume it is. All in one handy issue you will find a summary of a wide range of CR's previous findings, fully indexed for convenient reference. Listings of brand names, rated on the basis of CR's tests and expert examination fill many pages, along with practical advice and comments in many fields. This Annual Bulletin is a consumer's encyclopedia of information and is often called "the handbook of buying". Why not order your copy today?

You will find a convenient order form and prices listed at the bottom of the next page.



FOAM RUBBER is now available by the yard in various department stores throughout the country. It is being promoted for use in reupholstering furniture, baby carriages, and playpen padding, table pads, and ironing board covers, according to The Wall Street Journal. Although it is somewhat expensive (around 98 cents a square foot for the one-inch thickness), it has the advantage of freedom from dust, to which some people are allergic, that is associated with the use of other materials including feathers, cotton, or kapok.

* * *

THE CAUSE OF HEART FAILURE IS NOT HARD WORK, according to Dr. Theodore G. Klumpp, prominent medical and drug expert. In a speech before a scientific meeting, Dr. Klumpp set forth the major causes of heart attacks as lack of physical exercise and overeating, taking the view that such seizures are the climax of a gradual process of hardening of the arteries and are not brought on by violent physical activity on the golf course or by intense mental work.

* * *

CINNAMON OIL IN TOOTHPASTE has previously been reported as a cause of allergic dermatitis. But a case of allergic reaction appearing as cold sores about the mouth, reported by three physicians in the Journal of the American Medical Association not long ago, is believed to be the first reported case of sensitivity to synthetic cinnamon oil. A new ammoniated toothpaste with the artificial cinnamon flavor had been used for about three weeks before the patient showed symptoms of sensitivity to it. Complete cure followed cessation of use of the toothpaste.

* * *

KEEPING DOWN THE FLY POPULATION is aided by proper garbage disposal. Advice on how to do this effectively is given by the National Pest Control Association which recommends using metal garbage cans with tight lids, draining, and wrapping the garbage, and making certain that the lids are kept on. The cans should be kept clean, and this is facilitated by painting the bottom and seam edge inside and the top band edge with red lead. Paradichlorobenzene (the well-known "moth crystals") is effective against fly larvae and may be applied in the amount of 2 ounces per garbage can.

Consumers' Research, Inc. Washington, N. J.

Please enter my order as checked. I am enclosing my check (or money order) for \$

Begin subscription with _____ issue.

Name _____

Street _____

City & Zone _____ State _____

Business or Profession _____

CR-9-53

Please check your preference:

☐ I enclose \$2.00 (Canada & foreign, \$2.25) for a copy of the new September 1953 Annual Bulletin. Since I am a subscriber to Consumers' Research Bulletin (12 issues), I am entitled to the special rate.

☐ I enclose \$5.00 (Canada & foreign, \$5.50) for one year's subscription to Consumers' Research Bulletin monthly (12 issues) AND the new September 1953 Annual Bulletin.

☐ New ☐ Renewal

☐ I enclose \$3 (Canada & foreign, \$3.50) for one year's subscription to Consumers' Research Bulletin monthly (12 issues).

☐ New ☐ Renewal

☐ I enclose \$3.25 (Canada & foreign, \$3.50) for a copy of the new September 1953 Annual Bulletin alone.

Phonograph Records

BY WALTER F. GRUENINGER

Please Note: The first symbol applies to quality of interpretation, the second to fidelity of recording.

COLUMBIA'S latest release of LP's in its Special Collector's Series includes: Weingartner conducting his arrangement of Beethoven's "Hammerklavier" Sonata, some Wagner and two Handel "Concerti Grossi"; Beecham conducting two Mozart symphonies; Feuermann playing the Haydn's "Cello Concerto" and a Beethoven Sonata; Szigeti playing the Bloch Concerto and Bartok's "Contrasts." The records confirm the skill of these conductors and performers. They show, too, that the fidelity of these old records originally released as 78's cannot be made to compare with today's best.

URANIA'S Request Series is a new low-priced line, for most Urania records list for \$5.95. Announced in the Request Series are 13 symphonic 12-inch LP's selling for \$3.50 each. I have heard five of them featuring German radio orchestras in Tchaikovsky's "Piano Concerto No. 1" with Alex De Vries, Schubert's "Symphony No. 7 in C Major," Dvorak's "New World Symphony," Borodin's "Symphony No. 2" coupled with his "Polovtsian Dances." Then there is Elly Ney as piano soloist in Beethoven's "Emperor Concerto" with the Vienna Philharmonic. The performance in every case is moderately enjoyable but in no case is it highly recommended. The same can be said for the fidelity of recording. The principal criticism here is the lack of dynamic contrast and of crystal clarity. The Vienna Philharmonic recording is better than the others in this respect but Elly Ney's plodding performance doesn't help matters. Considering all factors—if you'd like to try one or two of these LP's I suggest you begin with Tchaikovsky's "Piano Concerto No. 1" and with Schubert's great C Major Symphony.

* * *

Beethoven: Piano Concerto No. 1. Badura Skoda with the Vienna State Opera Orchestra under Scherchen. Westminster WL 5209. \$5.95. Beethoven surpassed this work but it bears the mark of genius as these performers demonstrate—though not without some sluggishness in the piano part and sloppiness in a few orchestral passages. Close in, wide range recording. A AA

Beethoven: Trios Nos. 3, 5, and 6. Santoliquido Trio. Decca DL 9691. \$5.55. Mature Beethoven piano trios played with insufficient intensity and *brío*. Acceptable recording. B B

Beethoven-Schubert-Schumann: Lieder. Fischer-Dieskau (baritone). LHMV 1046. \$5.95. Eleven German art songs, most of which are masterpieces. This young baritone is not yet the perfect lieder singer as his performance of "Der Erlkönig" clearly shows. But he is quite extraordinary in moulding a phrase, in quality of tone (except when it's unaccountably "deadpan") and in enunciation. Excellent recording. A AA

Brahms: Symphony No. 1. Orchestra of the Vienna State Opera under Scherchen. Westminster WL 5189. \$5.95. A fitful fourth movement scores as the major fault in the interpretation of this great symphony. Pre-emphasis necessitates turning down the high frequency control to achieve best balance. A A

Debussy: 3 Sonatas. Fournier, Doyen, Janigro, Wanaussek, Weiss, Jellinek. Westminster WL 5207. \$5.95. Included are the sonatas for violin and piano; for cello and piano; for flute, viola, and harp. A big value for Debussy

chamber music admirers but others will note the empty pages. All of the playing is on a high order. Excellent recording. A AA

Dvorak: Symphony No. 2. Philharmonia Orchestra under Kubelik. LHMV 1027. \$5.95. Brahms-like, tragic work too rarely heard. Kubelik knows this field and the men do him proud. AA B

Gershwin: Porgy and Bess & Gould: Spirituals Minneapolis Symphony Orchestra under Dorati. Mercury MG 50016. \$5.95. Robert Russell Bennett's brilliant arrangement is the feature here. Excellent performance and magnificent recording. AA AA

Gould: Latin American Symphonette & Barber: Overture to The School for Scandal, Adagio for Strings, Essay for Orchestra No. 1. Eastman-Rochester Symphony Orchestra under Hanson. Mercury MG 40002. \$4.85. The immediately attractive Gould symphonette gives ground after a few hearings to the depth and beauty of Barber's *Adagio* and his *Essay*. All are well performed. Good recording. A A

Haydn: St. Anthony Divertimento and Divertimento in G Major. London Baroque Ensemble under Haas. Decca DL 4066. \$2.50. Charming music. The "St. Anthony" is played with style and is very well recorded. Overside falls short of it on both counts. B B

Haydn: Symphonies Nos. 44 and 49. Orchestra of the Vienna State Opera under Scherchen. Westminster WL 5206. \$5.95. Tempi are a shade slow in these masculine, sad works but Scherchen is a leader of refinement. Pre-emphasized high frequencies cause a little difficulty in achieving correct balance. A A

Mozart: Divertimento for String Trio (K563). Pougnet (violin), Riddle (viola), Pini (cello). Westminster WL 5191. \$5.95. A six movement gem. Outstanding playing. More bite in the cello recording would improve matters but that's a minor point. AA A

Mozart: Excerpts from The Marriage of Figaro. Greindl (bass), Trotschel (soprano), Kupper (soprano). Decca DL 4065. \$2.50. Four lovely arias clearly recorded and rather well sung. A A

Respighi: The Pines of Rome and The Fountains of Rome. Minneapolis Symphony Orchestra under Dorati. Mercury MG 50011. \$5.95. These vanishing tone poems, in terms of concert performance, demand more incisive playing and color than they get here. Recording of brass frequently obscures strings and the mountainous climaxes are leveled off. B B

Smetana: My Fatherland. Chicago Symphony Orchestra under Kubelik. 4 sides, Mercury OL 2-100. \$11.90. My choice of records on this page that I would most like to add to my library. The "Moldau" is the best known of the six symphonic pieces that comprise this cycle. Arid pages are present, but the warm Bohemian music leaves a delightful glow. Masterfully conducted, performed and recorded. AA AA

Strauss Waltzes. Vol. 4. Bamberg Symphony Orchestra under Leitner and RIAS Symphony under Frisay. Decca DL 4062. \$2.50. "Emperor Waltz" and "Morning Papers Waltz" well played and brightly recorded though a background hiss suggests that the transfer to LP may have been made from disks. AA B